

VISIT...

LANZAROTE
Caliente.COM

THE STAPELIEAE

BY

ALAIN WHITE AND BOYD L S OANE

COLLABORATION WITH

The late DR. N. E. BROWN, The Royal Botanic Gardens, Kew, England;
PETER R. O. BALLY, ESQ., Moshi, Tanganyika;
THE BROOKLYN BOTANIC GARDENS, Brooklyn, U. S. A.;
PROF. AUGUSTE CHEVALIER, Musé d'Histoire Naturelle, Paris, France;
PROF. EMILIO CHIOVENDA, Istituto dell'Università, Bologna, Italy;
PROF. P. CHOUX, Faculté des Sciences, Marseille, France;
DR. LEON CROIZAT, New York, U. S. A.;
LADISLAUS CUTAK, ESQ., The Missouri Botanical Garden, St. Louis, U. S. A.;
R. J. DARVALL, ESQ., Atbara, Sudan;
PROF. KURT DINTER, Bautzen, Germany;
COL. RALPH EVELYN DRAKE-BROCKMAN, Worthing, England;
CAPT. AMBROSE E. A. DUNSTON, F. R. H. S., Donhead St. Mary, England;
R. A. DYER, ESQ., Botanical Section, Division of Plant Industry, Pretoria, South Africa;
THE EAST AFRICA AND UGANDA NATURAL HISTORY SOCIETY, Nairobi, Kenya;
PROF. ANTONIO DE FIGUEIREDO GOMES E SOUSA, Inhambane, Portuguese East Africa;
JOHN GOSSWEILER, ESQ., Luanda, Angola;
MISS M. GUNN, Botanical Section, Division of Plant Industry, Pretoria, South Africa;
HANS HERRE, ESQ., The University of Stellenbosch Botanic Gardens, Stellenbosch, South Africa;
J. F. KIRSTEN, ESQ., Pietersburg, South Africa;
HERBERT LANG, ESQ., Pretoria, South Africa;
MISS CYTHNA LETTY, Botanical Section, Division of Plant Industry, Pretoria, South Africa;
CARL LUCKHOFF, ESQ., Capetown, South Africa;
PROF. R. MAIRE, Service Botanique de l'Université, Algiers, Algeria;
P. V. MAYURANATHAN, ESQ., Government Museum, Madras, India;
DR. J. MUIR, Riversdale, South Africa;
PROF. G. C. NEL, University of Stellenbosch, Stellenbosch, South Africa;
MISS A. A. OBERMEIJER, The Transvaal Museum, Pretoria, South Africa;
DR. E. P. PHILLIPS, Botanical Section, Division of Plant Industry, Pretoria, South Africa;
N. S. PILLANS, ESQ., University of Capetown, Bolus Herbarium, Kirstenbosch, South Africa;
DAVID PRINGLE, ESQ., Port Elizabeth, South Africa;
GILBERT W. REYNOLDS, ESQ., Johannesburg, South Africa;
ERNST RUSCH, ESQ., Windhoek, South West Africa;
E. B. W. SCHOENFELDER, ESQ., Grootfontein, South West Africa;
DR. H. G. SCHWEICKERDT, Botanical Section, Division of Plant Industry, Pretoria, South Africa;
MISS EDITH L. STEPHENS, University of Capetown, Rondebosch, South Africa;
SIDNEY TAPSCOTT, ESQ., N'Kana Mine, Northern Rhodesia;
W. TRIEBNER, ESQ., Windhoek, South West Africa;
MISS I. C. VERDOORN, Botanical Section, Division of Plant Industry, Pretoria, South Africa;
DR. E. WERDERMANN, Botanisches Museum, Berlin-Dahlem, Germany;
THE WILD PLANT SOCIETY OF MATABELELAND, Bulawayo, Southern Rhodesia.

VOLUME II

PASADENA, CALIFORNIA

1937



ATE VIII

Stapelia pulvinata Masson

an original

drawing by Carl Luckhoff

THIS SECOND VOLUME OF
THE SECOND EDITION OF
THE STAPELIEAE PRINTED
IN FEBRUARY,
1937

TYPOGRAPHY AND PRINTING
BY SCOTT E. HASELTON AT
ABBEE SAN ENCINO PRESS

CONTENTS

VOLUME I

INTRODUCTION

DISTRIBUTION OF SPECIES 15

CHRONOLOGICAL NOTES 73

THE GENERA AND SPECIES:

Key to the Genera

I. *Frerea* Dalzell

II. *Caralluma* R. Brown 151

III. *Stultitia* Phillips 393

IV. *Drakebrockmania* White et Sloane 401

V. *Edithecolea* N. E. Brown

VOLUME II

VI. *Stapelia* Linnaeus 409

VII. *Stapeliopsis* Pillans 720

VIII. *Diplocyatha* N. E. Brown 722

IX. *Pectinaria* Haworth 727

X. *Duvalia* Haworth 741

XI. *Piaranthus* R. Brown 783

VOLUME

XII. *Huernia* R. Brown

XIII. *Stapelianthus* Choux

XIV. *Huerniopsis* N. E. Brown 965

XV. *Echidnopsis* Hooker fil.

XVI. *Trichocaulon* N. E. Brown

XVII. *Hoodia* Sweet

XVIII. *Hoodiopsis* Luckhoff . . . 1091

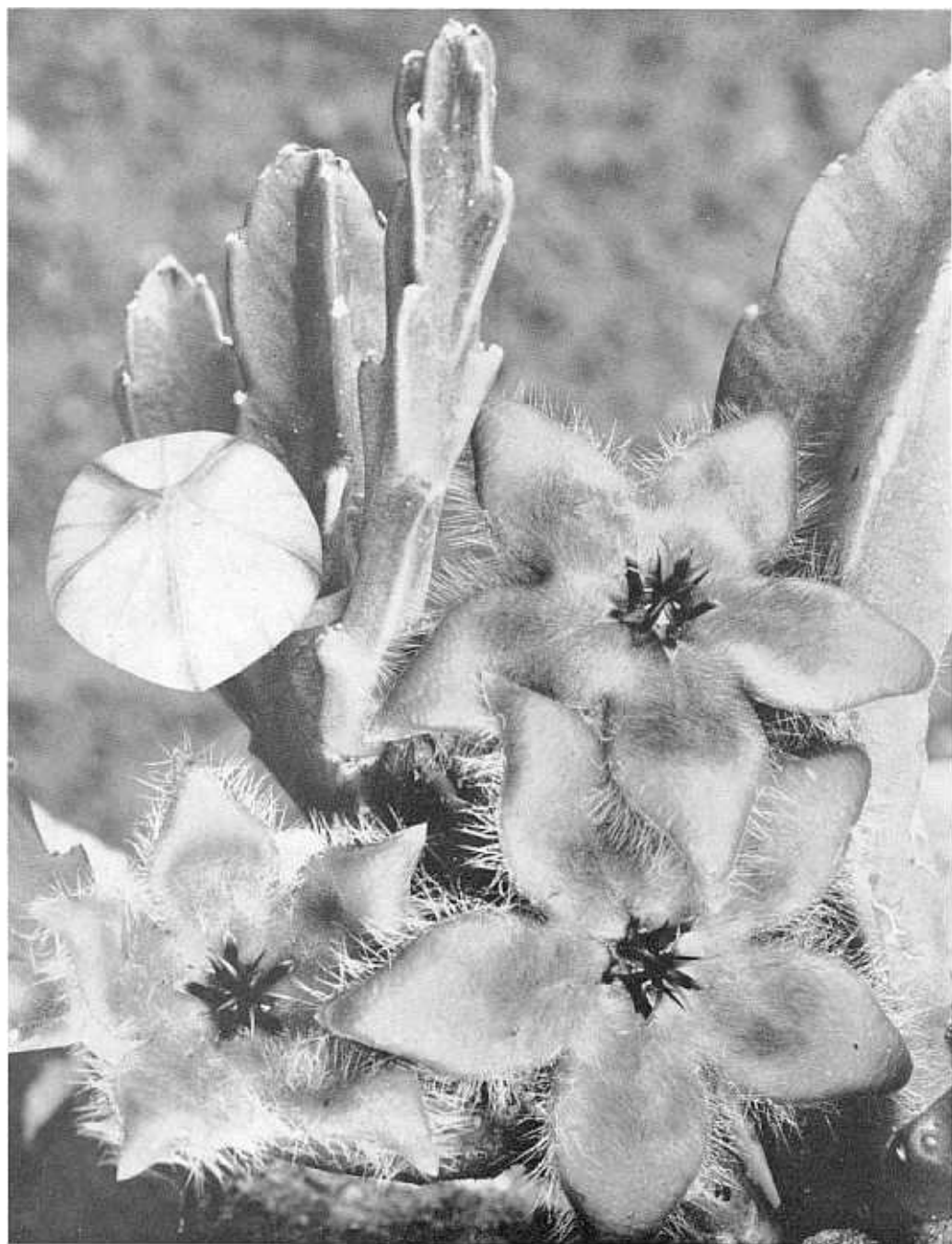
XIX. *Luckhoffia* White et Sloane 1095

XX. *Tavaresia* Welwitsch 1099

CONTENTS

APPENDIX A — Justus Heurnius	109
APPENDIX B — Nicolaas Witsen	
APPENDIX C — Guaaps as Food and Medicine	1121
APPENDIX D — Local Names of Indian Carallumas	1122
APPENDIX E — The Subdivision of Genera	
APPENDIX F — STAPELIEAE in the Richtersveld	1127
APPENDIX G — Local Names of South African Stapeliads	1133
APPENDIX H — Cultural Notes	1136
APPENDIX I — Latin Diagnoses	1144
APPENDIX J — Glossary	1147
APPENDIX K — Addenda	1153
MAP: Distribution of the STAPELIEAE, by W. E. Rudolph	End of Vol. I.
MAP: Vegetation Areas of South Africa, by Dr. I. B. Pole Evans	End of Vol. II.

THE STAPELIEAE



Stapelia glabricaulis N. E. Brown

Photo by Herbert Lang.

STAPELIA Linnaeus, Crit. Bot., 3. 73

- Gonostemon* Haworth, Syn. Pl. Succ., 27. 1812.
Podanthes Haworth, Syn. Pl. Succ., 32. 1812.
Caruncularia Haworth, Syn. Pl. Succ., 33. 1812.
Tridentea Haworth, Syn. Pl. Succ., 34. 1812.
Tromotriche Haworth, Syn. Pl. Succ., 36. 1812.
Orbea Haworth, Syn. Pl. Succ., 37. 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 925):

Plants: dwarf succulent perennial herbs, branching at the base; *stems* thick and fleshy, 4 (rarely and then abnormally 5 to 6) -angled; angles often compressed and usually toothed; teeth spreading or ascending or tipped with minute rudimentary or rarely with distinct subulate leaves 2 to 5 lin. long;

Flowers: 1 to many together from near the base, middle or upper part of the stems or the clusters scattered along their sides, pedicellate, large or of moderate size, rarely small, usually with a carion-like or disagreeable odor;

Calyx: 5-partite;

Corolla: rotate or broadly cup-shaped or with a short broad cup-like or funnel-like tube or with a central cavity containing the corona, with or without a raised ring (*annulus*) on the disk around the corona, 5-lobed; lobes valvate in bud;

Corona: double, arising from the staminal column;

Outer corona: of 5 simple entire, bifid, 3-toothed or deeply trifid lobes alternating with the anthers, quite free or rarely shortly connected at the base, very rarely of 10 to 15 free segments or subequally 10-toothed;

Inner corona: of 5 simple, bifid, 2-horned or dorsally winged or crested lobes opposite and incumbent at their base or wholly upon the anthers and longer or shorter than them;

Staminal column: arising from the bottom of the corolla; *anthers* ascending or inflexed upon the top of the style, without a terminal appendage; *pollen-masses* ascending or subhorizontal, pellucid along the upper part of the inner margin, solitary in each anther-cell, attached in pairs to the pollen-carriers by short stout caudicles; *pollen-carriers* with a wing-like expansion on each side, blackish or dark brown;

Follicles: narrowly or stoutly fusiform, smooth; *seeds* crowned with a tuft of hairs.

Type species: *Stapelia variegata* and *S. hirsuta*.

Total species: about 85, with many hybrids.

Distribution: Tropical and South Africa.

The generic name, *Stapelia*, was first proposed by Linnaeus in his *Critica Botanica*, Leyden, dated May 31, 1737. He was discussing different problems of botanical nomenclature, and one of these concerned the necessity, as he saw it, of establishing new genera to dispel confusion in cases where earlier botanists had assigned a given plant or group of plants to more than one genus.

The very first example of this method

which Linnaeus cited was the new genus, *Stapelia*. It was required, he said, to prevent confusion between the genera *Asclepias*, *Crassa*, *Aizoides* and *Stisseria* (see p. 78), and he went on to say that he had coined the name from that of "Bodaeus á Stapel, Belga, 1644." Two months later, July 30, 1737, Linnaeus again used the name in his *Hortus Cliffortianus*, and he there explained its derivation more fully, speaking of *S. variegata*, saying: "I

named this genus after Johannes Bodaëus à Stapel, the painstaking commentator on the works of Theophrastus, since he was easily the first who *discovered* (? *detexit*) the aforesaid species!"

The genus grew slowly, until the publication of Francis Masson's *Stapelieae Novae* in 1796 added 37 new species to the scant dozen previously described. At this period the scope of the genus was at its broadest, embracing the whole tribe of the STAPELIEAE as we now understand it. In 1809 Robert Brown first proposed a division of *Stapelia*, separating from it *Caraluma*, *Huernia* and *Piarranthus*. In 1812 Haworth carried the division much further, creating nine new genera: *Duvalia* and *Pectinaria*, which are still maintained; *Obesia*, now included in *Piarranthus*; and *Caruncularia*, *Gonostemon*, *Orbea*, *Podanthes*, *Tridentea* and *Tromotriche*, all later reincorporated into *Stapelia* as sectional divisions by Stephan Endlicher. The scope of *Stapelia* proper was thus restricted by Haworth to very narrow limits, retaining only about a dozen species in the relationship of *S. hirsuta* and *S. grandiflora*.

Since Haworth's time, further amputations from *Stapelia* have been more than offset by the restorations of Endlicher. These later amputations have been the new genera *Hoodia* (by Robert Sweet, 1830), *Diplocyatha* and *Trichocaulon* (by Dr. N. E. Brown, 1878), *Stultitia* (by Dr. E. P. Phillips, 1933) and *Luckhoffia* (by White and Sloane, 1935). All the remaining genera of the STAPELIEAE which are recognized to-day have been erected upon species not previously associated with *Stapelia*.

The restoration of Haworth's genera as sections within a re-enlarged genus *Stapelia* has hitherto been attributed to J. Decaisne, who revised the ASCLEPIADACEAE for de Candolle's *Prodromus* in 1844. But Decaisne took over the sectional division of *Stapelia* almost bodily from a work by Stephan Endlicher, *Genera Plantarum*,

Vienna, 1836-1840. In this book, at page 598, for which the date is August, 1838, Endlicher poured back into the receptive crucible of *Stapelia* everything which Haworth had taken out, excepting only the solitary *Pectinaria*, which he ingenuously confessed he could not understand. All Haworth's names he retained as sectional names, including *Obesia* and *Duvalia*, and Decaisne's only contribution towards clarifying the situation consisted in carving these two excrescences off again.

Endlicher's results were a hodge-podge, of no importance except that they furnished the starting point of our present day conception of *Stapelia*, as being a generic body composed of a number of sectional subdivisions. There was one difficulty he had to deal with. How should he treat the particular group of plants for which Haworth had retained the name *Stapelia*? Evidently they must have a section to themselves, and for it a new name must be found, since *Stapelia* had become the designation of the whole confederacy of sections. To-day we would have resorted to the euphemism *Eustapelia*. Endlicher also clung to the root, *Stapel*, and evolved the form *Stapeltonia*. This sectional name Decaisne took over with no acknowledgement and he misspelled the word *Stapletonia*, this incorrect spelling persisting in all later books.

Thus *Stapelia* has come to occupy a position half-way between the tribal breadth it enjoyed in the days of Francis Masson and the extremely restricted meaning it had in Haworth's system. The genus as we know it is composed of plants with 4-angled stems, only one species (*S. neliana*) being described as having 6-angled stems. In general the stems can be readily distinguished from those of plants in other genera, especially the *Stapeltonia* stems, which are straight, very slightly toothed and often pubescent; but there are a few cases where confusion is possible, such as the similarity in habit between *S. peduncu-*

lata and *Caralluma aperta*, or that between *Stapelia longidens* and *Stultitia tapscottii* or *Caralluma rogersii*.

In theory *Stapelias* and *Carallumas* are separated on the character of the coronas in their flowers. The inner corona-lobes of the *Carallumas*, as we have already seen, are defined as being more or less adnate to the outer corona, while in the *Stapelias* no such connection exists; and the outer corona-lobes of the *Carallumas* are defined as being more or less intergrown at the base, while in the *Stapelias* they are free of any such intergrowth. These definitions, however, are not absolute, inasmuch as species intermediate between the two genera continue to be found from time to time, such as *Caralluma intermedia*, *Stapelia dummeri* and *S. woodii*; but a reunion of the two

genera will not soon be made, just because these doubtful species cannot be rigorously classified. A reunion of *Stapelia* and *Caralluma* would be too clumsy and would reverse too many traditions ever to receive serious consideration.

Just as there are overlapping species between the two genera, so there are many cases in any subdivision of either genus into groups or sections where accurate distinctions cannot be made. For many years Dr. N. E. Brown favored a modified sectional system, but in the *Flora Capensis* he gave it up entirely. We have used the system as the basis for our Key, simply as a matter of convenience, for the genus as a whole is an intricate one to steer through and any guide may be welcomed, even if occasional inconsistencies are involved.

Section 1. *Stapelluma*, sect. nov.

The five species brought together in this new section are related mainly by the similarity of their mottled stems armed with characteristic conical tapering teeth. As the name suggests, these species approach very near to the borderline between the *Stapelias* and *Carallumas*. And there are

three other species with similar stem forms, *Caralluma rogersii*, *Stultitia cooperi* and *Stultitia tapscottii*, which have only recently been divorced from *Stapelia*. The coronal architecture of the flowers of all these plants present some very intricate problems in classification.

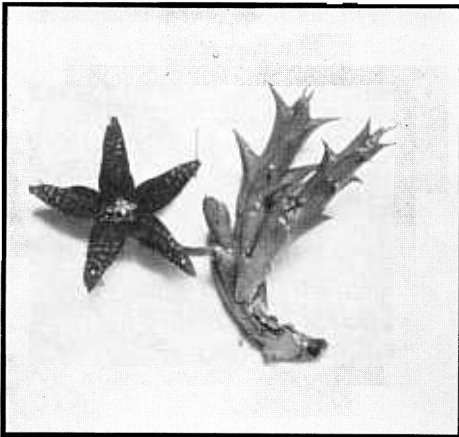


FIG. 350

Stapelia molonyae, sp. nov. x 0.6

Photo by Mrs. E. R. Molony.

Example of *Stapelia* (Section I: *Stapelluma*), with stems with long conical tapering teeth, and the inner corona-lobes incumbent on the anthers.

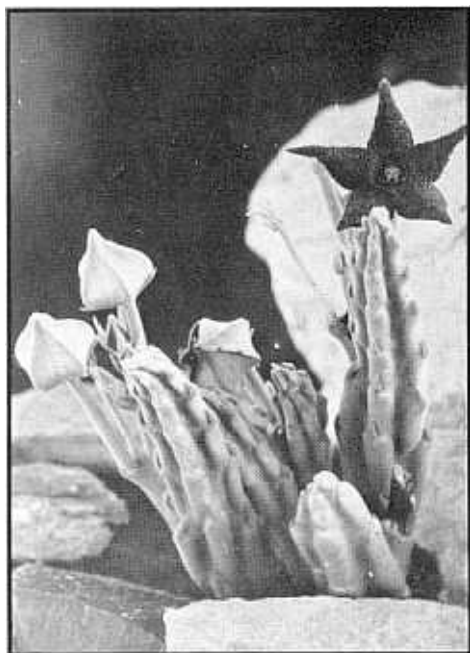


FIG. 351

Stapelia kwebensis N. E. Brown · x 1.

Photo by T. N. Leslie.

Example of *Stapelia* (Section II: *Podanthes*),
with the inner corona-lobes incumbent on the
anthers, with or without a small
dorsal projection.

Section 2. *Podanthes* Haworth, (pro genere), Syn. Pl. Succ., 32. 1812.

The name *Podanthes* means "foot-flower" and refers to the shape of the inner corona-lobes, especially as seen in the most characteristic species, *S. verrucosa*. Here the lobes very distinctly suggest a tiny inverted foot, the toe horizontally incumbent upon the anthers and the heel produced in a slight gibbosity.

The section consists of small unrelated clans, the very interesting "kwebensis quartet," the solitary *S. parvipuncta* and the few species which centre around *S. verrucosa*.

In all of these different members the incumbent tips of the inner corona-lobes persist, but in most of them the little dorsal heel is lacking. Some of the *Stapellumas* have very similar inner coronas, especially *S. woodii*; but these plants are so closely united by their prominently toothed stems that they may well be kept in a distinct section. In the *Podanthes* section, as in *Stapelluma*, there are frequent hints of some of the species being closely connected with the *Carallumas*.

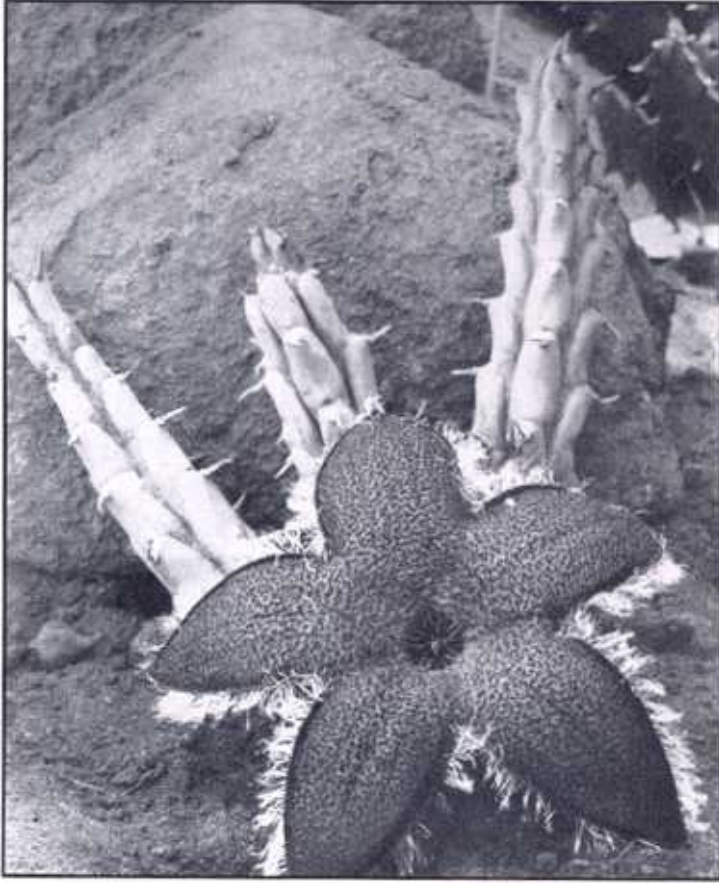


FIG. 352

Stapelia gemmiflora Masson x 1.

Photo by S. Tapscott.

Example of *Stapelia* (Section III: *Tridentea*), with the outer corona-lobes 3-toothed, the lateral teeth shorter than the middle one.

Section 3. *Tridentea* Haworth, (pro genere), Syn. Pl. Succ., 34. 1812.

Tridentea, the "three-toothed section," is the only group of *Stapelias* primarily characterized by the outer corona structure. The outer corona-lobes are tipped by a strong central tooth, with a shorter tooth

at each side. Although the section is a small one, it includes some very beautiful species, notably *S. virescens*, *S. marientalensis* and *S. gemmiflora*.



FIG. 353

Stapelia rufa Masson x 0.8

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932.

Example of *Stapelia* (Section IV: *Fissirostres*), with the inner corona-lobes consisting of a single erect horn, bifid or emarginate at the apex.

Section 4. *Fissirostres* N. E. Brown, Icon Pl., 10. 1890.

Fissirostrum Berger, Stap. und Klein., 297. 1910.

The section of the "cleft beaks" contains a single species, *Stapelia rufa*, distinguished from all other *Stapelias* by the way in which the erect inner corona-lobes are split at the apex into two somewhat diverging segments.

Section 5. *Gonostemon* Haworth, (pro genere), Syn. Pl. Succ., 27. 1812.

The distinction between the two sections, *Stapeltonia* and *Gonostemon* is not great. The dorsal wing of the inner corona-lobes in the *Stapeltonias* is relatively large and prominent, in the *Gonostemons* it is small and crest-like, or reduced to an inconspicuous hump or knee-like gibbosity. The latter form is that from which the section takes its name (the "knobby corona"), but in certain species the dorsal hump disappears entirely and in others it is replaced by a distinct secondary horn. The plants in this section are small-flowered, compared to the *Stapeltonias*, *S. deflexa* being the only one with flowers over an inch and a half in diameter, and it might almost equally well be considered as a *Stapeltonia*, for while in

the type the inner corona-lobes have the reduced crest-like wing of the *Gonostemons*, in the var. *atropurpurea* they have a well-developed free dorsal wing. The character of the *Gonostemons* is varied and they include some of the most charming of *Stapelias*, such as *S. concinna* and *S. nouhuysii*, *S. dinteri* and *S. glanduliflora*.

The stems in some *Gonostemons* are glabrous, but more generally they are minutely puberulous. They occasionally bear a resemblance to the *Stapeltonia* type, but one can usually feel a difference, for on the average they are not so tall and straight, with angles less compressed and rudimentary leaves less erect and regular.

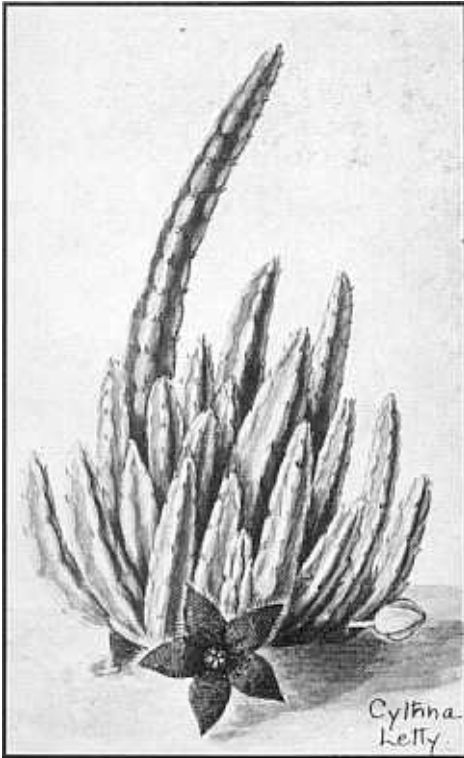


FIG. 354

Stapelia olivacea N. E. Brown x 0.5

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932. Example of *Stapelia* (Section V: *Gonostemon*), with the inner corona-lobes consisting of a single horn, erect or rarely incumbent with erect tips, with or without a small dorsal projection, or of two acute horns.

Section 6. *Stapeltonia* Endlicher, Gen. Pl., 598. 1838.*Stapletonia* Decaisne, de Candolle: Prodrumus, viii. 652. 1844.

The *Stapeltonia* section includes a larger number of species than does any other, about 35, and among these will be found one masterpiece of evolution after another. *S. gigantea*, *S. grandiflora*, *S. nobilis*: the names themselves speak of the size and dignity of many of the flowers, while such names as *S. hirsuta* and *S. pulvinata* call to mind the hair cushions characteristic of a number of the species, always a vivid source of admiration. There is a close sectional tie between all the species. Their stems may be markedly pubescent, as in *S. arnoti*, or glabrous, as in *S. peglerae*; the flowers may be strikingly hairy, as in *S. senilis*, or hairless, as in *S. vetula*; they may show great extremes in size (compare *S. gigan-*

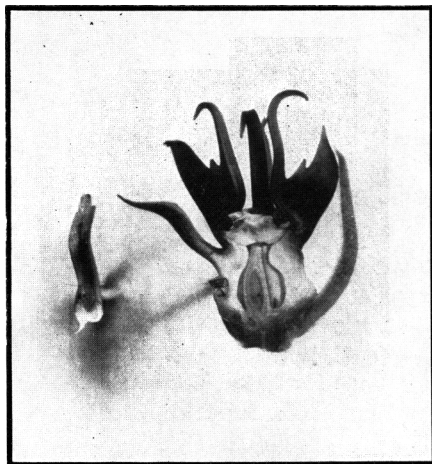


FIG. 355

Stapelia ambigua var. *fulva* Sweet
Cross section of corona x 3.

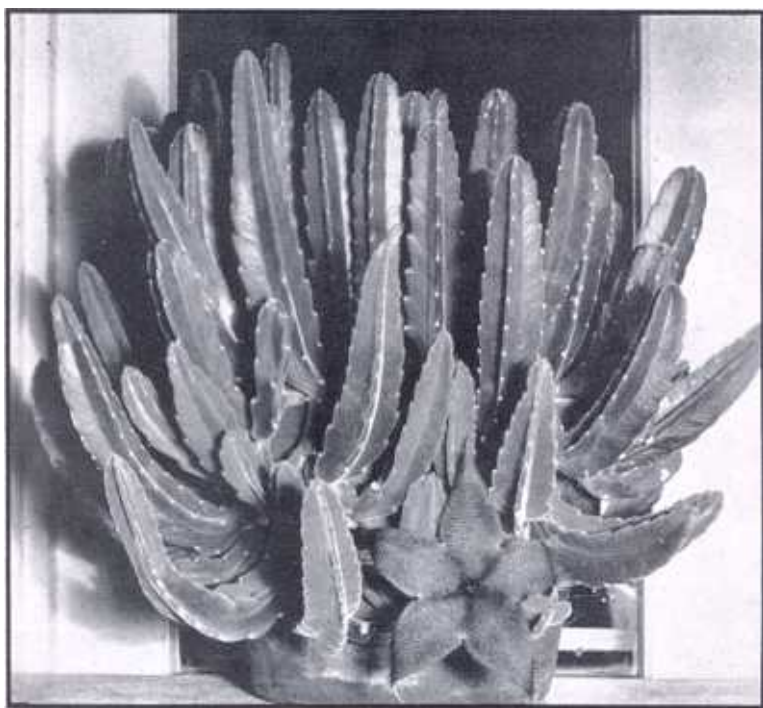


FIG. 356

Stapelia desmetiana N.
E. Brown x 0.2

Example of *Stapelia* (Section VI: *Stapeltonia*), with the inner corona-lobes consisting of an inner horn with a conspicuous dorsal wing.

tea with *S. immelmaniae*), or equally surprising modifications in shape (compare *S. leendertziae* with *S. schinzii*); but

through all the innumerable structural fluctuations there runs a common spirit which almost always permits us to identify

a *Stapeltonia* at sight. The straight erect stems, though they may vary in the degree to which the angles are compressed or in the length of the rudimentary leaves (note their special prominence in *S. gettleffii*); the color tones of the corolla with their frequently contrasting transverse lines; and above all the eloquent inner corona-lobes, with graceful horn and broad dorsal wing: all these factors combine to give the *Stapeltonias* an unmistakeable individual-

ity. In preparing a Key to the section, one would wish to stress the character of the inner corona-lobes of the different species, so distinctive is the yellow beak of *S. flavirostris*, the single wing formation of *S. macowani* or the hooked apex of the horn in *S. ambigua*; but in other species the distinctions are less pronounced and in a few the form is altogether too variable to serve as a helpful guide.

Section 7. *Clavirostres*, sect. nov.



FIG. 357

Stapelia herrei Nel x 0.75

Photo by Carl Luckhoff.

Example of *Stapelia* (Section VII: *Clavirostres*), without a corolla annulus and with the inner corona-lobes consisting of two horns, one or both clavate at the apex.

The new section of the *Clavirostres* ("clavate beaks") comprises four species, whose common features are that the corolla has no annulus and that the inner corona-lobes are formed of two clavate horns (not tubercled at the apex, as in *Caruncularia*). Two of the quartet, *Stapelia neliana* and *S. herrei*, are so distinct from other *Stapelias* that they do not fit into any of the

older sections, and the establishment of the *Clavirostres* is the readiest way to provide for them. Of the two others, *S. clavicorona* would class among the *Stapeltonias* except for its rare coronal form, and *S. engleriana* might be considered a *Gonostemon*, for occasionally both horns of its inner corona-lobes are found to be acute.



FIG. 358

Stapelia pedunculata Masson x 1.

Photo by Carl Luckhoff in South African Gardening and Country Life, 1934.

Example of *Stapelia* (Section VIII: *Caruncularia*), without a corolla annulus and with the inner corona-lobes consisting of two horns, one or both ending in a knob covered with fleshy projections.

Section 8. *Caruncularia* Haworth, (pro genere), Syn. Pl. Succ., 33. 1812.

The Latin word *Caruncula* means a small lump of vegetable matter or flesh, and the reference in the sectional name *Caruncularia* is to the appearance of the horns of the inner corona-lobes, one or both of which (according to the species) have their recurving tips terminated by a large knob, covered with sharp angular projections. The stems of the *Caruncularias* are indis-

tinguishable from those of *Caralluma aperta*, and the pale zone spotted in shades of brown or red in the tube or on the basal part of the corolla-lobes also finds an echo in *C. aperta*, so that there must exist a certain relationship to this *Caralluma*, notwithstanding the generic difference in the coronal structure.

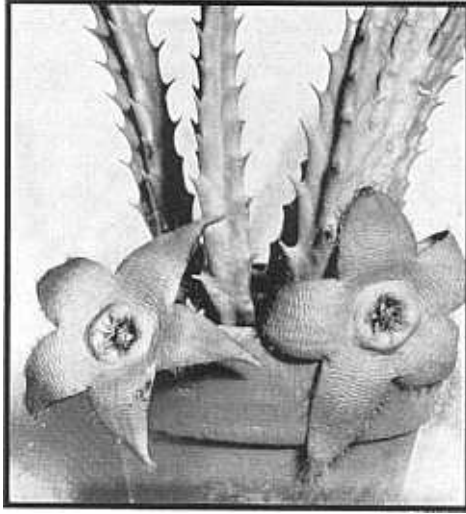


FIG. 359

Stapelia comparabilis White et Sloane x 0.5
Example of *Stapelia* (Section IX: *Tromotriche*),
with the corolla with a constricted horizontal
thickening around the corona.

Section 9. *Tromotriche* Haworth, (pro genere), Syn. Pl. Succ., 36. 1812.

The flowers of so many Stapeliads are ciliate with vibratile hairs that it may seem arbitrary to reserve the name *Tromotriche*, which means "trembling hair" in Greek, for a small Section consisting of only one species and a few hybrids. Yet here surely the vibratile hairs (clavate in *S. revoluta* and the hybrid *S. incomparabilis*, mostly simple in *S. bella* and *S. comparabilis*) find perfect embodiment, for you will hardly glance at a *Tromotriche* flower without setting the fringes of the corolla-lobes in ex-

cited motion and at your least touch the hairs will begin to fall right off.

In several respects *Tromotriche* suggests a transition between *Stapeltonia* and *Orbea*. The stems are more nearly like the former, the corona like the latter, especially the erect recurved inner horn of the inner corona, with its clavate apex; and the central thickened fabric of the corolla, while not a raised annulus, does show the way towards the structure of *S. mutabilis*.

Section 10. *Orbea* Haworth, (pro genere), Syn. Pl. Succ., 37. 1812.

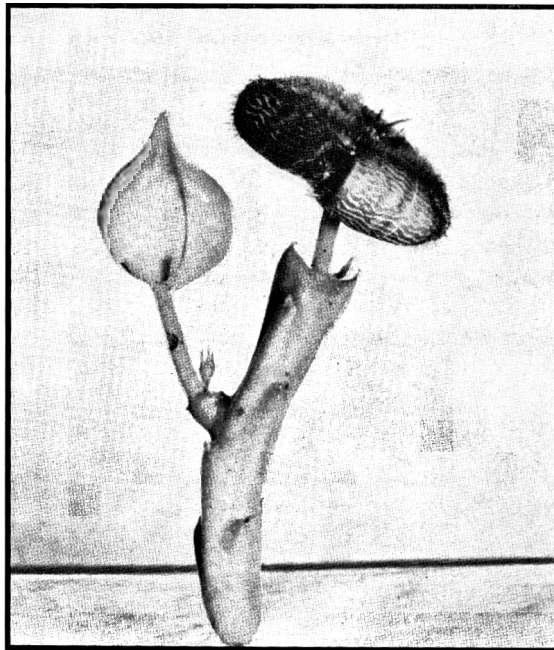
The permutations of form in this section are so numerous and intricate that it is hard to find a definition which will embrace them all and delimit them from other groups. One cannot say that the corolla always has an annulus, for in the closely related hybrid, *S. maculosoides*, there is no annulus; nor can one say that the annulus always has a recurved outer margin, for in *S. mutabilis* the upstanding annulus does not have a spreading margin. One cannot say that the inner corona-lobes are 2-horned, for in *S. namaquensis* there is only a single horn. One cannot even say that the stems are glabrous, for in *S. barklyi* they are pubescent. All one can really say

is that the section is devoted to *S. variegata*, its immediate relatives, varieties and hybrids. In *S. barklyi* one will find the line of transition from *S. variegata* towards the *Stapeltonias*, and in *S. pulchella* the line of transition towards *S. verrucosa*. In the varieties of *S. variegata* one will find such pronounced modifications that one can hardly tell where this protean species properly ends and other species (*S. lepida*, for instance) begin. And as to the interminable procession of the hybrids, one can only let them march past in their gay and lurid colors, without attempting to regiment them formally.



FIG. 360

Six-lobed flower, related to *Stapelia variegata* var. *picta* N. E. Brown
Example of *Stapelia* (Section X: *Orbea*), with the inner corona-lobes two-horned and the corolla with a low or raised annulus.



GEN STAF .IA

- I. Outer corona-lobes 3-toothed, with the lateral teeth shorter (*Tridentea*) Section III
- II. Outer corona-lobes of all other types:
 - A. Inner corona-lobes consisting of a single segment, with dorsal projection:
 - 1. Stems with conspicuously long conical tapering teeth on the anthers (*Fissirostres*) Section II
 - 2. Stems not with conspicuously long conical tapering teeth on the anthers (*Fissirostres*) Section IV
 - Inner corona-lobes erect, and bifid or emarginate at the apex (*Fissirostres*) Section IV
 - Inner corona-lobes erect, or incumbent with erect tips, without any dorsal projection, or with a small gibbosity at the base or very small wing; corolla $2\frac{1}{2}$ inches or less (*Gonostemon*) Section V
 - B. Inner corona-lobes consisting of an inner horn, with a more or less broad basal wing; corolla without an annulus:
 - 1. Inner corona-lobes consisting of two horns:
 - a. Inner corona-lobes with both horns acute (*Gonostemon*) Section V
 - b. Inner corona-lobes with one or both horns clavate at the apex (*Clavirostris*) Section VII
 - c. Inner corona-lobes with one or both horns ending in a knob covered with fleshy projections (*Caruncularia*) Section VIII
 - 2. Corolla with a constricted horizontal thickening around the corona (*Tromotriche*) Section IX
 - 3. Corolla with a low or raised annulus (*Orbea*) Section X

Stapelia. SECTION I. (Stapelluma).

(Woodii-dummeri Group).

(Stems with conspicuous conical tapering teeth, $\frac{1}{2}$ to 1 inch long; corona form various).

- I. Corolla papillate 1. *S. dummeri* ($1\frac{1}{2}$ in.)
- II. Corolla not papillate:
 - A. Corolla-lobes not ciliate 2. *S. longidens* ($1\frac{3}{4}$ in.)
 - B. Corolla-lobes ciliate along the middle part only 3. *S. woodii* ($1\frac{1}{2}$ in.)
 - C. Corolla-lobes ciliate nearly or quite to the apex:
 - 1. Corolla deep maroon with only 4 or 5 golden-yellow markings 4. *S. molonyae* (2 in.)
 - 2. Corolla dark chocolate with many yellow markings 5. *S. semota* ($1\frac{1}{2}$ in.)

Stapelia. SECTION II. (Podanthes).

(Verrucosa-kwebensis Group).

(Inner corona-lobes consisting of a single segment, incumbent on the anthers, with or without a small dorsal projection).

- I. Corolla pale yellow, with purple or reddish spots:
 - A. Corolla with an annulus:
 - 1. Inner corona-lobes with no dorsal thickening 6. *S. fucosa* ($1\frac{1}{4}$ in.)
 - 2. Inner corona-lobes with a slight dorsal gibbosity 7. *S. verrucosa* (2 in.)
 - B. Corolla without an annulus, or indistinctly annulate:
 - 1. Corolla-lobes not ciliate 8. *S. irrorata* ($2\frac{3}{4}$ in.)
 - 2. Corolla-lobes ciliate 9. *S. parvipuncta* ($1\frac{1}{4}$ in.)
- II. Corolla yellowish-purple with many purple dots, with a greenish-yellow zone at the centre 10. *S. rubiginosa* ($\frac{4}{5}$ in.)
- III. Corolla purplish-black, with a whitish zone at the centre:
 - A. Corolla with an annulus 11. *S. stultitoides* ($\frac{4}{5}$ in.)
 - B. Corolla without an annulus, or indistinctly annulate 12. *S. arenosa* ($1\frac{1}{5}$ in.)
- IV. Corolla dark purple-brown, in one species with pale yellow transverse markings:
 - A. Corolla with an annulus 13. *S. miscella* ($\frac{1}{2}$ in.)
 - B. Corolla without an annulus, or indistinctly annulate:
 - 1. Corona 1-seriate, outer corona absent 14. *S. juttae* ($\frac{4}{5}$ in.)
 - 2. Corona normally 2-seriate:
 - a. Corolla with pale yellow transverse markings 15. *S. portae-aurinae* (1 in.)
 - b. Corolla without pale yellow transverse markings:
 - i. Corolla wholly glabrous on inner face 16. *S. similis* ($\frac{2}{3}$ in.)
 - ii. Corolla pubescent on apical half of lobes 17. *S. kwebensis* ($1\frac{1}{4}$ in.)

Stapelia. SECTION III. (Tridentea).

(Virescens-gemmiflora Group).

(Outer corona-lobes 3-toothed, with the lateral teeth shorter or more slender).

- I. Corolla papillate on inner face:
 - A. Corolla-lobes not ciliate 18. *S. virescens* (1 in.)
 - B. Corolla-lobes ciliate:
 - 1. Corolla yellow at centre, then yellow with purple patches, and blackish-purple on lobes; ciliation white 19. *S. marientalensis* (1 $\frac{3}{4}$ in.)
 - 2. Corolla yellowish at centre, blackish-purple above; ciliation purple 20. *S. auobensis* (2 in.)
- II. Corolla with stiff spine-like hairs on inner face:
 - A. Corolla-lobes ciliate 21. *S. furcata* (1 $\frac{1}{2}$ in.)
- III. Corolla without papillae or hairs on inner face:
 - A. Stems with abnormally thickened roots 22. *S. pachyrrhiza* (3 in.)
 - B. Stems with normal roots:
 - 1. Stems with conspicuous knob-like teeth and rudimentary leaves 1 lin. long 23. *S. umbonata* (2 $\frac{1}{2}$ in.)
 - 2. Stems with obtuse teeth and long spreading rudimentary leaves 2 to 4 lin. long 24. *S. gemmiflora* (3 in.)

Stapelia. SECTION IV. (Fissirostres).

(*S. rufa*).

(Inner corona-lobes consisting of a single segment, erect, bifid or emarginate at the apex, with a short gibbosity at the back).

- I. Corolla transversely rugose on entire inner face 25. *S. rufa* (1 $\frac{1}{2}$ in.)

Stapelia. SECTION V. (Gonostemon).

(Deflexa-olivacea Group).

(Inner corona-lobes consisting of a single segment, erect, or incumbent with erect tips, without any dorsal projection, or with a small gibbosity at the base or very small wing; corolla $2\frac{1}{2}$ inches or less in diameter).

- I. Inner corona-lobes with a very small dorsal wing or flattened crest:
 - A. Corolla with simple purple hairs on disk only; ciliate with simple hairs; purple-red with or without a few yellow lines 26. *S. deflexa* ($2\frac{1}{2}$ in.)
 - B. Corolla covered with simple hairs throughout; not otherwise ciliate; purple with yellow lines 27. *S. concinna* ($1\frac{1}{3}$ in.)
 - C. Corolla with clavate hairs in tube only; not ciliate; dull purple-yellow 28. *S. flavopurpurea* ($1\frac{1}{2}$ in.)
 - D. Corolla glabrous and not papillate:
 1. Corolla ciliate with simple white hairs; purple-brown with yellow lines 29. *S. acuminata* ($1\frac{1}{2}$ in.)
 2. Corolla not ciliate; all chestnut-brown 30. *S. surrecta* (1 in.)
- II. Inner corona-lobes with a small dorsal gibbosity or hump:
 - A. Corolla-lobes ciliate with vibratile clavate hairs:
 1. Corolla cream color dotted and margined with purple-brown 31. *S. jucunda* (1 in.)
 2. Corolla greenish-yellow dotted and evenly margined with red-brown 32. *S. dinteri* (1 in.)
 3. Corolla greenish-yellow dotted and very irregularly margined with red-brown 33. *S. ausana* (1 in.)
 - B. Corolla-lobes ciliate with simple white hairs:
 1. Corolla dull purple with greenish tips to lobes . . . 34. *S. divaricata* ($1\frac{1}{2}$ in.)
 - C. Corolla-lobes not ciliate:
 1. Corolla mottled purple on a paler ground 35. *S. stricta* ($1\frac{2}{3}$ in.)
- III. Inner corona-lobes consisting of a single segment, without any dorsal wing or gibbosity:
 - A. Inner corona-lobes slightly clavate:
 1. Corolla ochreous spotted and margined with maroon . 36. *S. cincta* (1 in.)
 - B. Inner corona-lobes not clavate:
 1. Corolla distinctly campanulate 37. *S. dwequensis* ($1\frac{3}{5}$ in.)
 2. Corolla not distinctly campanulate:
 - a. Corolla-lobes completely rolled back on themselves, pubescent with white hairs 38. *S. erectiflora* ($\frac{1}{2}$ in.)
 - b. Corolla-lobes spreading, covered on basal half with clavate white hairs 39. *S. glanduliflora* ($1\frac{1}{4}$ in.)
- IV. Inner corona-lobes consisting of two horns, not clavate:
 - A. Corolla hairy on basal half 40. *S. nouhuysii* ($\frac{3}{4}$ in.)
 - B. Corolla glabrous:
 1. Corolla-lobes not ciliate; corolla purple-brown . . . 41. *S. pearsonii* ($1\frac{1}{4}$ in.)
 2. Corolla-lobes ciliate with simple hairs; corolla red-brown or greenish with brown lines 42. *S. olivacea* ($1\frac{1}{2}$ in.)
 3. Corolla-lobes ciliate with clavate hairs; corolla whitish with purple-brown spots 43. *S. albo-castanea* (1 in.)

Stapelia. SECTION VI. (Stapeltonia).

(Gigantea-hirsuta Group).

(Inner corona-lobes consisting of an inner horn with a more or less broad dorsal wing).

I. Corolla large, 5 inches or more in diameter:

A. Corolla with a prominent campanulate or swollen tube:

1. Corolla-lobes not ciliate:

- a. Corolla ochre-yellow with dull red lines 44. *S. cylista* (8 in.)
- b. Corolla brownish-purple 45. *S. leendertziae* (5 in.)

2. Corolla-lobes ciliate on basal $\frac{1}{3}$ only:

- a. Corolla violet-crimson 46. *S. wilmaniae* (5 in.)

3. Corolla-lobes ciliate to the tips:

- a. Corolla ochre-yellow with crimson lines 47. *S. nobilis* (8 in.)

B. Corolla not with a prominent tube:

1. Corolla-lobes not with attenuate tail-like tips:

a. Corolla yellowish with crimson to purple lines to tips of lobes:

- i. Corolla covered with purple hairs throughout . . . 48. *S. gigantea* (15 in.)
- ii. Corolla with purple hairs, but glabrous at tips . . . 49. *S. youngii* (5 in.)

b. Corolla greenish-yellow with crowded purplish lines not extending to tips of lobes 50. *S. maccabeana* (6 in.)

c. Corolla dark purple-brown without markings 51. *S. grandiflora* 6 in.)

d. Corolla brownish-purple with darker transverse lines . . . 52. *S. ambigua* (5 in.)

e. Corolla purple with transverse yellow lines:

- i. Stems with long incurved rudimentary leaves . . . 53. *S. gettleffii* (6 in.)

ii. Stems with rudimentary leaves of normal length:

- + Corolla covered throughout with simple purple or white hairs . . . 54. *S. desmetiana* (5 in.)

- ++ Corolla covered except on apical $\frac{1}{3}$ of lobes with dense simple white hairs 55. *S. senilis* (5 in.)

- +++ Corolla covered to base of lobes only with purple hairs 56. *S. flavirostris* (6 in.)

2. Corolla-lobes with attenuate tail-like tips:

- a. Corolla-lobes ciliate with simple hairs 57. *S. pillansii* (5 to 8 in.)

- b. Corolla-lobes ciliate with clavate hairs 58. *S. schinzii* (5 to 9 in.)

II. Corolla medium sized, over 3 inches to under 5 inches in diameter:

A. Corolla with a very dense central hair cushion:

- 1. Central hair cushion extending to base of lobes only . . . 59. *S. pulvinata* (4 in.)

- 2. Central hair cushion extending half-way up the lobes . . . 60. *S. margarita* (4 $\frac{1}{2}$ in.)

B. Corolla with central cushion less densely to thinly hairy:

1. Corolla without transverse yellow lines:

- a. Corolla vinous-purple with tips of lobes black . . . 61. *S. arnoti* (4 in.)

- b. Corolla dark purple-brown 62. *S. fuscopurpurea* (4 in.)

- c. Corolla shiny purplish-red 66(a). *S. asterias* var. *lucida*

- 2. Corolla with transverse yellow lines:
 - a. Hairs extending to apex of lobes 63. *S. marlotbii* (4 in.)
 - b. Hairs extending to lower part of lobes only:
 - i. Transverse yellow lines extending to tips of lobes 64. *S. sororia* (4½ in.)
 - ii. Transverse yellow lines not extending to tips of lobes:
 - + Corolla surface not conspicuously shiny . . . 65. *S. hirsuta* (4½ in.)
 - ++ Corolla surface conspicuously shiny:
 - ◇ Hairs on corolla disk radiating more densely in 5 bands to the sinuses . . . 66. *S. asterias* (4 in.)
 - ◇◇ Hairs on disk and base of lobes evenly dense throughout . . . 67. *S. gariepensis* (3½ in.)
 - c. Hairs extending across disk only; lobes wholly glabrous 68. *S. plantii* (4½ in.)
 - C. Corolla with only a central pubescence around the corona:
 - 1. Corolla yellow-green with purple-brown lines . . . 69. *S. conformis* (3½ in.)
- III. Corolla small, 3 inches or less in diameter:
- A. Inner corona-lobes entirely wing-like (no inner horn) . . . 70. *S. macowani* (2½ in.)
 - B. Inner corona-lobes with a normal inner horn:
 - 1. Stems pubescent:
 - a. Corolla covered throughout with purple hairs, lobes ciliate; dull purple with yellow lines . . . 71. *S. immelmaniae* (1¾ in.)
 - b. Corolla glabrous, lobes ciliate; shiny violet-red-brown; lobes drawn out into attenuate tips . . . 72. *S. bergeriana* (3 in.)
 - 2. Stems glabrous or with a faint pubescence visible only under a lens:
 - a. Corolla wholly glabrous, lobes not ciliate:
 - i. Corolla blackish-purple without markings . . . 73. *S. vetula* (2½ in.)
 - ii. Corolla purple with pale yellow lines . . . 74. *S. nudiflora* (2 in.)
 - b. Corolla-disk or base of lobes pubescent to distinctly hairy, lobes ciliate:
 - i. Stems with a faint pubescence on angles, visible only under a lens:
 - + Corolla smoky-purple or with a few yellowish lines 75. *S. tsomoensis* (2½ in.)
 - ii. Stems wholly glabrous:
 - + Corolla dark purple-brown 76. *S. peglerae* (2½ in.)
 - ++ Corolla reddish-purple:
 - ◇ Outer corona-lobes deeply divided to the base and pincers-like . . . 77. *S. forcipis* (3 in.)
 - ◇◇ Outer corona-lobes minutely toothed, not deeply divided 78. *S. glabricaulis* (3 in.)

Stapelia. SECTION VII. (Clavirostres).

(Engleriana-herrei Group).

(Inner corona-lobes two-horned, with both horns clavate at the apex)

- I. Corolla campanulate:
 - A. Stems 4-angled; corolla light brownish-purple
with white markings 79. *S. herrei* (1¼ in.)
 - B. Stems 6-angled; corolla darker brownish-purple, with
greenish-yellow markings 80. *S. neliana* (2¼ in.)
- II. Corolla not campanulate:
 - A. Corolla-lobes completely rolled back on themselves 81. *S. engleriana* (1 in.)
 - B. Corolla-lobes spreading 82. *S. clavicorona* (2½ in.)

Stapelia. SECTION VIII. (Caruncularia).

(Pedunculata Group).

(Inner corona-lobes two-horned, one or both ending in a large knob covered with fleshy rounded or angular projections).

- I. Outer corona-lobes deeply bifid, each segment also ending
in a knob covered with fleshy projections 83. *S. longii* (1 in.)
- II. Outer corona-lobes not deeply bifid nor ending in knobs
covered with fleshy projections:
 - A. Inner horn of inner corona-lobes with spatulate tip,
contrasting with the terminal knob of the outer
horn 84. *S. longipes* (2¼ in.)
 - B. Inner horn of inner corona-lobes ending in a terminal
knob similar to that of the outer horn:
 - 1. Corolla prominently campanulate 85. *S. ruschiana* (1½ in.)
 - 2. Corolla not prominently campanulate:
 - a. Upper part of corolla-lobes olive-brown to
greenish-yellow 86. *S. pedunculata* (2 in.)
 - b. Upper part of corolla-lobes intensely
purple-black 84(a). *S. longipes* var. *namaquensis*

Stapelia. SECTION IX. (Tromotriche).

(Revoluta Group).

(Inner corona-lobes two-horned; corolla horizontally constricted and thickened at centre over the depression containing the corona).

- I. Corolla entirely smooth on the inner face:
 - A. Corolla-lobes ciliate with vibratile clavate hairs only 87. *S. revoluta* (1½ in.)
 - B. Corolla-lobes ciliate with vibratile simple (or a few intermixed clavate) hairs 88. *S. bella* (2 in.)
- II. Corolla transversely rugose on the inner face:
 - A. Corolla-lobes ciliate with vibratile clavate hairs only 89. *S. incomparabilis* (3 in.)
 - B. Corolla-lobes ciliate with vibratile simple (or a few intermixed clavate) hairs 90. *S. comparabilis* (4 in.)

Stapelia. SECTION X. (Orbea).

(Mutabilis-variegata Group).

(Inner corona-lobes two-horned, except in *S. namaquensis*; corolla with a distinct low or raised annulus, except in the hybrid, *S. maculosoides*).

- I. Inner corona-lobes slightly gibbous at base, but without a distinct outer horn:
 - A. Stems glabrous; corolla greenish-yellow with dense purple-brown markings; annulus with a recurved outer edge . . 91. *S. namaquensis* (3½ in.)
- II. Inner corona-lobes with a somewhat flattened outer horn:
 - A. Stems minutely pubescent; corolla purple-brown with yellow lines, apex of lobes purple-brown; with a thick solid annulus 92. *S. barklyi* (5 in.)
 - B. Stems glabrous; corolla yellow with violet-purple markings, margins and apex of lobes violet-purple; without an annulus 93. *S. maculosoides* (2¾ in.)
- III. Inner corona-lobes with a subulate, filiform or clavate outer horn; stems glabrous:
 - A. Annulus obtuse or rounded, not with a recurved outer edge:
 - 1. Corolla-lobes ciliate with simple hairs; corolla pale yellow with purple-brown markings, margins and apex of lobes purple-brown 94. *S. maculosa* (3½ in.)
 - 2. Corolla-lobes ciliate with clavate purple hairs; corolla purple-brown with ochre-yellow lines on edge of annulus and base of disk 95. *S. bijliae* (2½ in.)
 - 3. Corolla-lobes ciliate with vibratile clavate hairs: corolla yellowish with purple-brown markings, apex of lobes purple-brown 96. *S. mutabilis* (1½ in.)
 - 4. Corolla-lobes not ciliate; corolla sulphur-yellow with small purple-brown dots 97. *S. pulchella* (1¾ in.)
 - B. Annulus with an acute spreading or recurved outer edge:
 - 1. Corolla 1½ in. or less; sulphur-yellow with small purple-brown spots, annulus much paler 98. *S. lepida* (1½ in.)
 - 2. Corolla over 1½ in.; yellowish with purple-brown markings, to entirely purple-brown in the varieties . . 99. *S. variegata* (2 to 4 in.)

1. *Stapelia dummeri* N. E. Brown, Gard. Chron., lxi. 132. 1917.

(Description by Dr. Brown, l.c.):

Stems: decumbent at the base, $2\frac{1}{2}$ to $3\frac{1}{2}$ in. long, 4 to 5 lin. thick excluding the teeth, obscurely 4-angled or subcylindric, toothed; teeth 4 to 7 lin. long, about $1\frac{1}{2}$ lin. thick at the base, spreading, rather slender, conical-subulate, tapering to a very fine point; surface smooth, glabrous, light greyish-green, striped with purple;

Flowers: produced near the base of the young branches in clusters of 4 to 6, but developing singly;

Pedicel: 4 to 6 lin. long, glabrous;

Sepals: 2 to $2\frac{1}{2}$ lin. long, 1 lin. broad, ovate-lanceolate, acute, glabrous;

Corolla: about $1\frac{1}{2}$ in. in diameter, of an "olive-greenish-ochre color," according to Mr. Dummer, with the united part forming a small cup about $2\frac{1}{2}$ lin. deep; *lobes* spreading, 6 to 7 lin. long, 2 lin. broad at the base, thence tapering to an acute point, smooth and glabrous on the back, studded with cylindric papillae $\frac{1}{2}$ to $\frac{3}{4}$ lin. long on the inner face, each papilla being tipped with a slender hair 1 to $1\frac{1}{2}$ lin. long, producing a laxly hairy appearance, with the papillae and hairs standing erect from the surface;

Outer corona: lobes arising 1 to $1\frac{1}{2}$ lin. above the base of the stout staminal column, spreading, pocket-like, about $\frac{1}{2}$ lin. long, and rectangular as viewed from above, 4-toothed at the truncate apex, with the lateral teeth diverging, curved, and the middle pair of teeth minute and contiguous, glabrous, apparently yellow;

Inner corona: lobes closely bent inwards on the tops of the anthers and staminal column, with their tips crossing one another in a horizontal manner, not at all turned upwards, nearly or quite 1 lin. long and $\frac{2}{3}$ lin. broad, rectangular, 3-toothed at the apex, with the middle tooth usually much longer than the lateral teeth, acute, glabrous, apparently yellow.

Type locality: Tanganyika: found growing in cultivation in Bukoba.

Distribution: Tanganyika: between Kilimanjaro and the Pare Hills, at 2,300 feet elevation; Kenya: at the foot of the Mea Hills; at Kanam, on the Kavirondo Gulf.



FIG. 362

Stapelia dummeri N. E. Brown x 0.5

Photo by P. R. O. Bally, from a plant collected between Kilimanjaro and the Pare Hills.

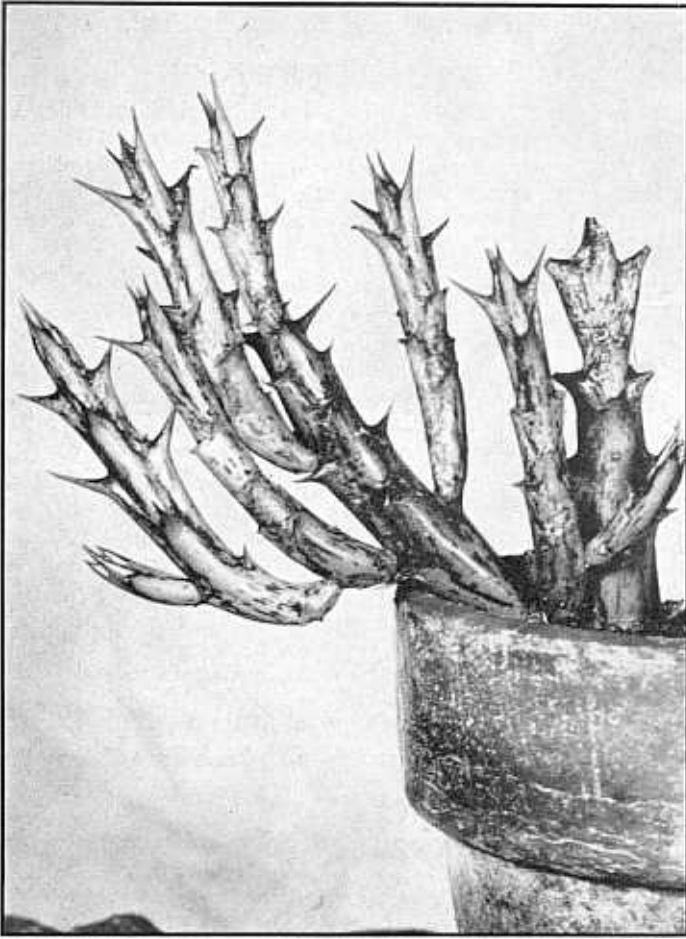


FIG. 363

Stems of *Stapelia dummeri* N. E. Brown x 1.

This is the most equatorial of the *Stapelias*; but the description of its outer coronal lobes as "pocket-like" makes one feel that it must some day be transferred to the *Carallumas*. It was found by R. A. Dummer in the autumn of 1915, growing in cultivation in the plantain gardens of some Baganda natives in Bukoba, Tanganyika, on the west shore of Lake Victoria, 75 miles south of the Line. According to Mr. Dummer, "the native name for the plant is *Kaulira*. The stems are broken and mixed with water, and the resultant liquid is then poured into the ear to relieve acute earache. The natives affirm that

it is efficacious. It is cultivated in their plantain gardens occasionally, but is by no means common. I do not think that it is a native, as I have never seen a *Stapeliad* growing wild here. It is very likely that it comes from the drier districts northwards, or possibly from some dry part of Kenya." Mr. Dummer's surmises have proved correct, for Peter R. O. Bally reports the plant from the plains which extend between Kilimanjaro and the Pare Hills, and Mrs. E. R. Molony writes us that she has found it plentiful at the foot of the Mea Hills in Kenya and also near Kanam.

According to Dr. N. E. Brown, "the

plant is of interest on account of its structural peculiarities. In the habit and general appearance of its stems it is much like *S. woodii* and *S. longidens*, whilst in its coronal structure it closely agrees with that of some species of *Caralluma*, and yet it is not very dissimilar from that of *Stapelia woodii* and *S. longidens*, so that it is intermediate between the two genera. The hairs on the inner surface of the corolla are quite unlike those of any *Stapelia* that I have seen, and more like those of certain species



FIG. 364

Stapelia dummeri N. E. Brown variety (?)

Photo by P. R. O. Bally of a plant collected at the top of the Great Rift Wall above Lake Manjara, Tanganyika, altitude 4,000 feet, where it grows in half shade under shrubs.



FIG. 365

Stapelia dummeri N. E. Brown x 1.

Photo by P. R. O. Bally, enlarged from Fig. 362.

of *Huernia*, for instead of arising direct from the surface of the flower, each hair terminates a distinct cylindrical papilla that stands erect upon the surface."

We believe that the flower shown in Fig. 365 represents the type of the species, and that Fig. 364 belongs to a variety or form with long bristles growing from the papillae on the corolla-lobes, instead of hairs. Mr. Bally also tells us that he knows of a variety with wholly glabrous flowers (var. *glabra*).

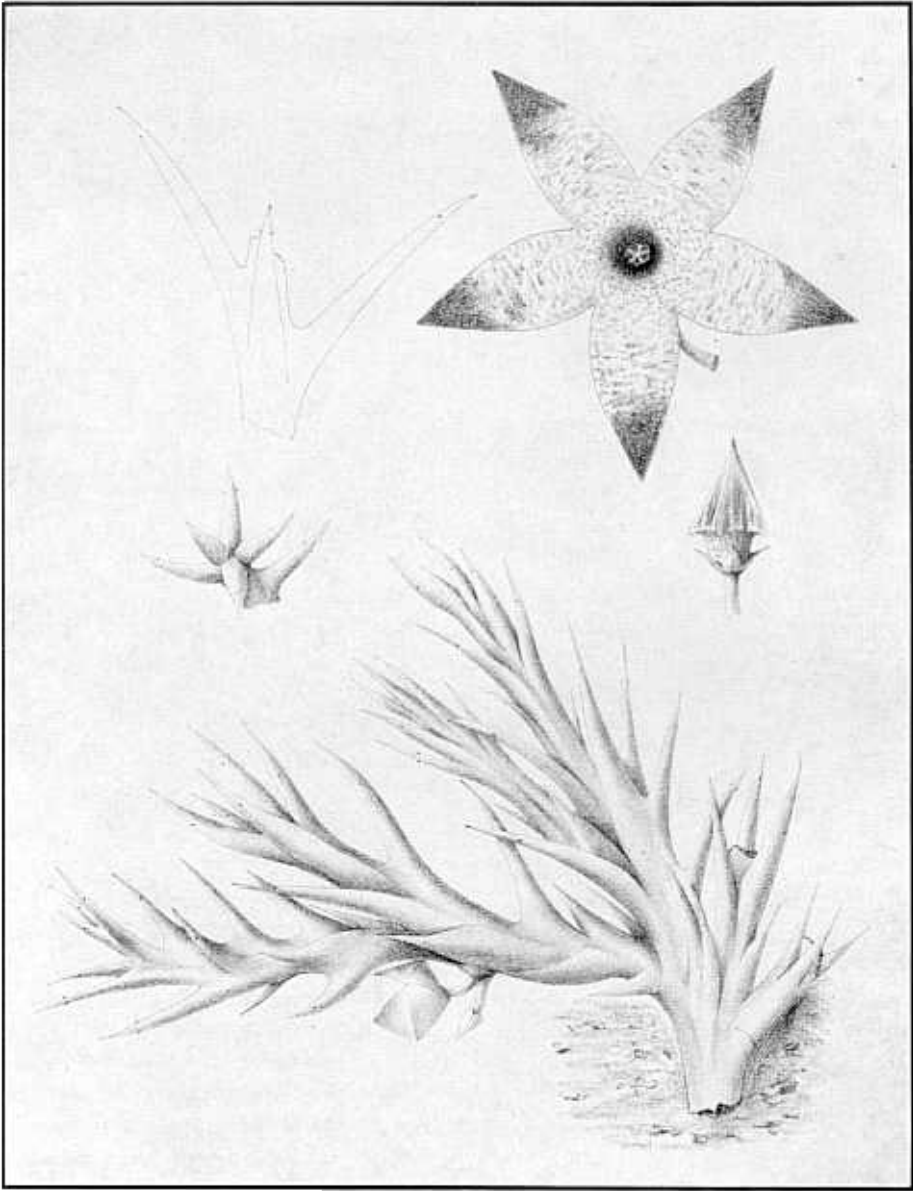


FIG. 366

Stapelia longidens N. E. Brown x 1.

Drawing by Antonio de Figueiredo Gomes e Sousa.

2. *Stapelia longidens* N. E. Brown, Gard. Chron., xviii. 324. 1895.

(Description by Dr. Brown, Flora Cap., iv. i. 973):

Stems: erect or ascending from a decumbent base, $2\frac{1}{2}$ to 6 in. long, 4 to 5 lin. thick excluding the teeth, obtusely 4-angled, with long stout teeth $\frac{1}{2}$ to 1 in. long and about $\frac{1}{8}$ in. thick at the base, teretely tapering to a fine soft point, glabrous, green, mottled with purple;

Flowers: 3 to several together at the base of the stems, successively developed;

Pedicel: $\frac{3}{4}$ in. long, 1 lin. thick, becoming up to $1\frac{1}{2}$ in. long and $\frac{1}{4}$ in. thick in fruit, glabrous;

Sepals: 4 lin. long, $1\frac{1}{4}$ lin. broad, lanceolate, acuminate;

Corolla: $1\frac{1}{2}$ to 2 in. in diameter, deeply lobed, quite glabrous and not ciliate on the lobes nor rugose on the pale greenish-yellow inner surface, spotted all over with dark purple-brown (cream color, spotted with crimson, *Mrs. Monteiro*), spots very small within the tube, increasing in size and more or less confluent towards the tips of the lobes; *tube* campanulate or cup-like, $2\frac{1}{2}$ lin. deep, with the bottom raised up to form a convex cushion supporting the corona; *lobes* 7 to 10 lin. long, $4\frac{1}{2}$ to 6 lin. broad, ovate-lanceolate, acute, flat;

Outer corona: lobes deflexed upon the basal cushion of the corolla, about $\frac{3}{4}$ lin. long and broad, quadrate, emarginate, purple-brown with yellowish margins;

Inner corona: lobes simple, closely incumbent upon the backs of the anthers, shortly exceeding them and meeting or crossing, but not erect or very slightly so at the tips, lanceolate, acute, scarcely or but slightly gibbous behind, dull yellowish dusted with purple-brown;

Follicles: erect, slightly diverging, about 7 in. long, $\frac{1}{2}$ in. thick, terete-fusiform, gradually tapering into a beak, glabrous, pale brownish-white, streaked with purple; *seeds* 5 lin. long, 3 lin. broad, ovate or elliptic-ovate, flat, with broad wing-like margins, pale brown.

Type locality: Portuguese East Africa: near Delagoa Bay.

Distribution: Maputaland.



FIG. 367

Stapelia longidens N. E. Brown x 0.75

From the *Gardeners' Chronicle*, 1895.

The "long-toothed *Stapelia*" was discovered by Mrs. J. J. Monteiro, about 1885, in Portuguese East Africa. It is well named, for the stems are even more strongly toothed than those of *Stapelia woodii*, sometimes having teeth an inch long, or about twice the stem diameter, tapering to a fine soft point. The flowers are greenish-yellow on the inner face, spotted dark purple-brown, and wholly glabrous. They have a shallow cup-shaped central tube, with the bottom raised up to form a convex support for the corona, in such a way that

the lobes of the outer corona are deflexed and rest upon this basal cushion. From this initial cushioning of the base of the corolla tube it is only a step to the convex disk of *Stapelia woodii* and then only another step to the annular disk of *Stultitia cooperi*. The coronas themselves, however, in the three species are so distinct that they afford no ground for arguing that an actual development occurred in the sequence named. A specimen from Maputaland shows flowers ciliate with some vibratile clavate hairs.

3. *Stapelia woodii* N. E. Brown, Gard. Chron., xi. 554. 1892.

(Description by Dr. Brown, Flora Cap., iv. i. 974):

Stems: erect from a shortly decumbent base, $1\frac{1}{2}$ to 3 in. long, 3 to 5 lin. thick excluding the teeth, obtusely 4-angled, with ascending-spreading stout conical-subulate very acute teeth $\frac{1}{3}$ to $\frac{1}{2}$ in. long, glabrous, green, striped and mottled with purple;

Flowers: 3 or more together near the base of the young stems, successively developed;

Pedical: 1 to $1\frac{1}{4}$ in. long, glabrous;

Sepals: 2 to $2\frac{1}{2}$ lin. long, ovate-lanceolate, acuminate, glabrous;

Corolla: $1\frac{1}{2}$ to $1\frac{3}{4}$ in. in diameter, flattish, with a convex disk supporting the corona raised above the level of the horizontally spreading or slightly deflexed lobes, glabrous on both sides, very rugose with small transverse wrinkles on the inner surface, ciliate along the middle part only of the lobes with long vibratile clavate dark purple hairs, chocolate or dull purple-brown, with a few dull yellow dots on the lobes, which are 5 to 6 lin. long, 4 to 5 lin. broad, ovate, acute or shortly acuminate, convex, with recurving margins;

Outer corona: lobes horizontally spreading, about $\frac{3}{4}$ lin. long and nearly as broad, rectangular or subquadrate, slightly notched or subdentate at the apex, grooved down the face, dark purple-brown;

Inner corona: lobes simple, with the basal part horizontally incumbent on the backs of the anthers, flattish, ovate-oblong or elliptic-oblong, tapering into an erect subulate point about $\frac{1}{2}$ lin. long, entire or with a minute tooth on each side at the base of the point, and slightly produced behind into a minute ascending entire or bifid tubercle, purple-brown.

Type locality: Natal: Noods Berg.

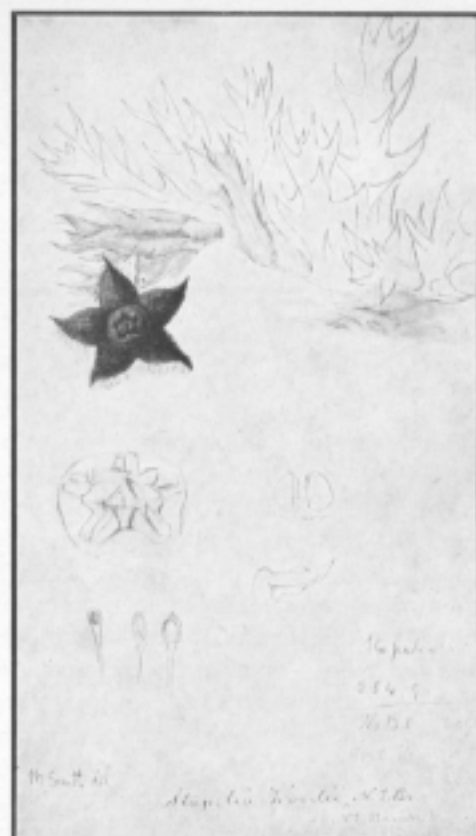
Distribution: Not further known.

Stapelia woodii was discovered in Natal about 1890 by J. Medley Wood, whose name it commemorates. The species is a most interesting one, with a coronal form leaning towards the *Carallumas*, and it is unfortunate that it has wholly disappeared from cultivation. The stems have obtuse angles and very acute conical teeth, up to half an inch in length. The flowers have a flat corolla, most interesting because it is equipped at the centre with a convex disk, not yet an annulus, supporting the corona, which is raised thereby above the level of the spreading corolla-lobes. The corolla is glabrous, very rugose on the inner surface, ciliate along the middle part only of the lobes with vibratile clavate purple hairs. The color is chocolate or dull purple-brown, with a few dull yellow dots on the lobes.

FIG. 368

Stapelia woodii N. E. Brown x 0.45

Drawing by M. Smith of a plant grown in Natal.
Reproduced by permission of the Bentham Trustees.



4. *Stapelia molonyae*, sp. nov.

(Description by A. White and Boyd L. Sloane) :

Species e Kenya innotuit, *Stapeliae woodii* proxima. Utriusque speciei corolla lobos obscuros maculis pallidioribus parce tenuiterque notatos ostendit. *Stapelia molonyae* autem corollae lobis maculis pulchre aureo-luteis forma ludentibus decoratis totisque ciliatis, corollaeque interioris lobis acuminatis bifidulis a *S. woodii* separatur.

Stems: 2 to 4 in. long, 5 to 6 lin. thick, strongly toothed with long stout conical teeth;

Flowers: 1 to 2 (rarely 3) together, remaining open several days;

Sepals: 4 lin. long;

Corolla: $1\frac{3}{4}$ to $2\frac{1}{2}$ in. in diameter; lobes $\frac{1}{2}$ to 1 in. long, deep maroon with 4 to 5 golden-yellow curiously shaped markings on the apical portion, ciliate for their entire length with vibratile clavate purple hairs;

Outer corona: lobes spreading, about 1 lin. long and broad, denticulate at the margin;

Inner corona: lobes incumbent upon the anthers, 2-toothed at the pointed apex.

Type locality: Kenya: near Nairobi.

Distribution: Not otherwise known.

This latest member of the *Stapelluma* section, which we have the privilege of naming for its discoverer, Mrs. Molony, formerly Botanist of the East Africa and Uganda Natural History Society in Nairobi, is an extremely interesting species. It grows near Nairobi and, instead of finding its nearest relatives, as one would expect, in the other two members of the section which are native to Kenya Colony (*Stapelia dummeri* and *S. semota*), it is most closely akin to *S. woodii*, a plant from Natal, 1500 miles or more further to the south. Like *S. woodii* it is characterized by the dark colored corolla-lobes with their very few lighter markings, but the color of the markings is a fine golden-yellow and their shape is more irregular. The corolla, as a whole, is larger, though its exact size varies greatly with the capricious extent of local showers; and the lobes are ciliate along their entire length, instead of only along a middle zone. The corona is similar to that of *S. woodii*, but the inner corona-lobes can be distinguished in that they have their pointed apex minutely 2-toothed. The



FIG. 369

Stapelia molonyae, sp. nov. x 1

Photo by Mrs. E. R. Molony.

color of the stems, like that of other *Stapellumas*, is often deeply mottled in maroon in long spells of dry weather, turning green with the return of rain.

5. *Stapelia semota* N. E. Brown, Cact. and Succ. Journ. Am., 393. 1933.

(Description by Dr. Brown, l.c.):

Stems: according to a drawing, very similar to those of *S. cooperi* and spotted as in that plant, about 3 in. long and $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, 4-angled with stout and very acute spreading or ascending teeth $\frac{1}{4}$ to $\frac{1}{2}$ in. long, glabrous, spotted;

Flowers: several together, developed successively;

*Pedice*l: $\frac{3}{4}$ to 1 in. long, glabrous;

Sepals: about 3 to $3\frac{1}{2}$ lin. long and 1 to $1\frac{1}{4}$ lin. broad, lanceolate, acuminate, glabrous;

Corolla: in bud ovoid, bluntly pointed; when expanded with the lobes spread out $1\frac{1}{2}$ to $1\frac{3}{4}$ in. in diameter, but when alive the lobes are evidently reflexed or recurved and about 8 lin. long and 4 lin. broad, ovate-lanceolate, acuminate, rugose on the face and glabrous on both surfaces, but ciliate nearly to the apex with vibratile clavate purple hairs, apparently of a dark chocolate color variegated with yellow markings; disk elevated into a thickened and somewhat pentagonal annulus 5 to 6 lin. in diameter, smooth, dark chocolate;

Outer corona: of 5 lobes about 1 lin. long and 1 lin. broad, subquadrate or slightly widened upwards, not quite truncate but very shortly and very bluntly pointed or sometimes with the side angles slightly produced so that the apex appears obsoletely 3-toothed, glabrous and apparently dark chocolate with yellow markings;

Inner corona: lobes $\frac{3}{4}$ lin. long, incumbent upon and not produced beyond the tips of the anthers, ovate, obtuse, with a dorsal hump, but entirely without horn or wing-like processes, apparently dark chocolate with yellow markings.

Type locality: Tanganyika: near Kondoia.

Distribution: Not further known.

This "remote *Stapelia*" is a recent member of the *Stapelluma* group, discovered by B. D. Burtt, Survey Botanist, about 1931.

The stems are like those of *Stultitia cooperi*; the flowers differ by the corolla-lobes being less rugose on the inner face and ciliate almost to the apex with vibratile clavate purple hairs and by the corona being of a more conventional *Stapelia* model. The outer corona-lobes are as broad as they are long, slightly widened upwards, with the apex very bluntly pointed or appearing three-toothed. The inner corona-lobes are incumbent on the anthers and not produced beyond them.

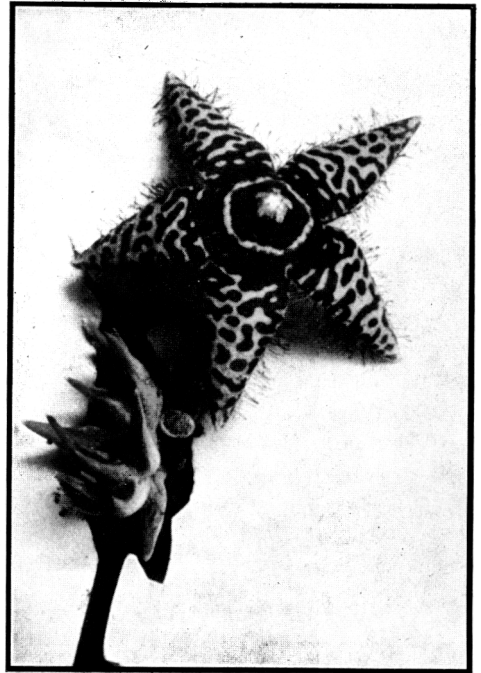


FIG. 370

Stapelia semota N. E. Brown x

Photo by Mrs. E. R. Molony.

6. *Stapelia fucosa* N. E. Brown, *Flora Cap.*, iv. i. 977. 1909.

(Description by Dr. Brown, l.c.):

Stems: erect, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. square excluding the $\frac{3}{4}$ to $1\frac{1}{2}$ lin.-long conical acute spreading teeth, very obtusely 4-angled, with flattish sides, glabrous, dull green, mottled with darker green or purple-brown, probably flowering near the base;

Pedical: 5 to 6 lin. long, glabrous;

Sepals: $1\frac{3}{4}$ to 2 lin. long, ovate-lanceolate, acute or acuminate, glabrous;

Corolla: about $1\frac{1}{4}$ in. in diameter, quite glabrous and not ciliate, smooth on the back, densely rugulose on the inner face; *disk* nearly flat or very shallowly saucer-shaped, having a solid pentagonal *annulus* 4 to $4\frac{1}{2}$ lin. in diameter and about $\frac{1}{2}$ lin. high around the corona; *lobes* spreading, $4\frac{1}{2}$ to 5 lin. long and as much in breadth, like an equilateral triangle in form, acute; pale greenish-yellow or sulphur-yellow, covered with numerous rounded blackish-purple spots about $\frac{1}{2}$ lin. in diameter, which are densely crowded and confluent on the annulus so that it is almost entirely blackish-purple and narrowly margined with the same color on the lobes;

Outer corona: lobes very spreading, about $\frac{2}{3}$ lin. long and broad, subquadrate, bifid to half-way down, with parallel teeth, blackish, shining;

Inner corona: lobes about $\frac{2}{3}$ lin. long, closely incumbent upon the backs of and not exceeding the anthers, ovate, acute or obtuse, not gibbous on the back at the shoulder, whitish or yellow on the disk, with the margins and base blackish.

Type locality: Cape Prov.: Pondoland: a half mile south-east of Mount Ayliff settlement, on the western slope of the mountain (Tonti Mt.?)

Distribution: Not further known.

The "camouflaged *Stapelia*" was discovered by Mr. Pillans in Pondoland, and appears to be extremely rare. In Latin the word "fucosus" has two meanings, "colored" and "counterfeit." The former connotation may refer to the highly colored effect of the corolla, pale greenish-yellow, with dark purple spots, more densely crowded on the solid annulus, the lobes narrowly margined in the same color. The "counterfeiting" element doubtless con-

sists in the great similarity the plant bears to *S. verrucosa*. It differs from this species mainly in the smaller more purple flowers, and in the lobes of its inner corona, which are closely incumbent on the backs of the anthers, with no dorsal thickening of any sort, whereas in *S. verrucosa* the inner corona-lobes are slightly longer than the anthers, though scarcely erect above them at the tips, and they have a slight dorsal gibbosity at the base.

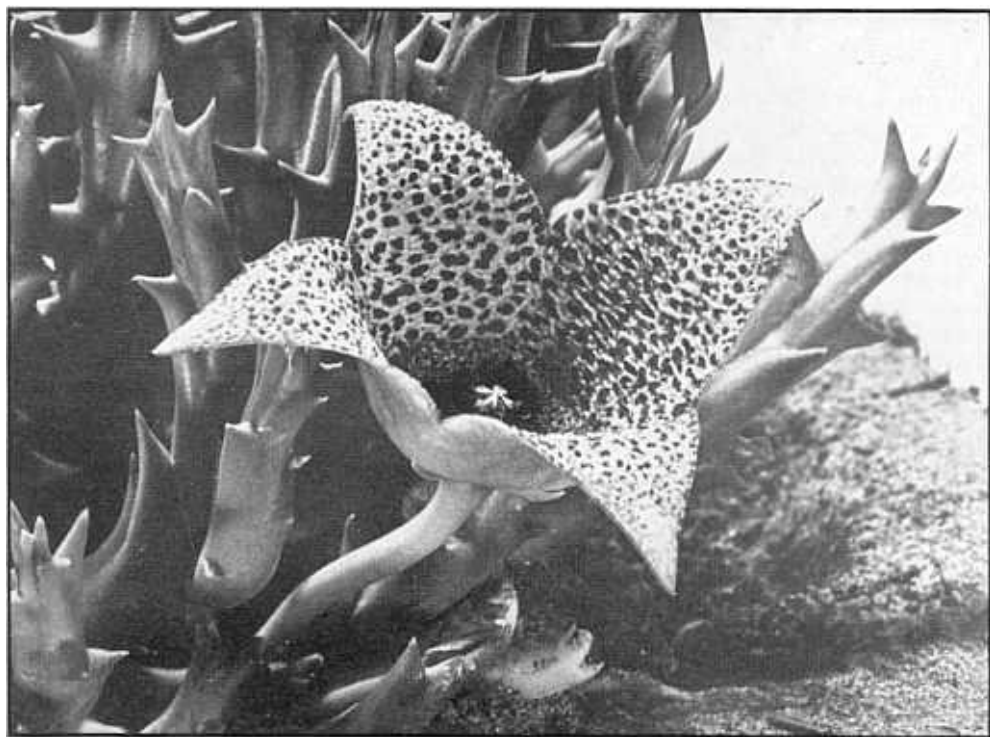


FIG. 371

A four-lobed specimen of *Stapelia verrucosa* x 1.25

Photo by A. W. Cocks.

7. *Stapelia verrucosa* Masson, Stap. Nov., 11. 1796.

Podanthès verrucosa Haworth, Syn. Pl. Succ., 33. 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 987) :

Stems: erect, decumbent at the base, $1\frac{1}{2}$ to 3 in. long, 3 to 5 lin. thick excluding the teeth, obtusely 4-angled, with spreading conical acute teeth $1\frac{1}{2}$ to 3 lin. long, glabrous, green;

Flowers: 1 to 3 together near the base of the young stems, developing successively;

Pedicel: $\frac{1}{2}$ to $1\frac{1}{4}$ in. long, spreading, glabrous;

Sepals: $2\frac{1}{2}$ to 5 lin. long, lanceolate or ovate-lanceolate, acuminate, glabrous;

Corolla: in bud conically pointed, with a depressed-ovate pentagonal basal part; when expanded $1\frac{3}{4}$ to $2\frac{1}{2}$ in. in diameter, lobed to more than half-way down, with the united part saucer or shallowly basin-shaped, 2 to 3 lin. deep outside, having a distinct slightly raised pentagonal solid *annulus* surrounding the corona, about $\frac{1}{2}$ lin. high, convex at the top, with 5 distinct channels radiating from the centre to its angles; *lobes* recurved-spreading, 8 to 10 lin. long, 6 to 8 lin. broad, deltoid-ovate, very acute or acuminate, not ciliate; all parts glabrous or with some short erect hairs at the very base under and concealed by the corona, smooth outside, very rugose with small papilla-like tubercles or very short irregular transverse ridges on the inner surface, pale yellow, covered with small dark blood-red spots, smaller and more crowded on the annulus, with the area around the corona entirely dark purple or purple-brown;

Outer corona: lobes horizontally or slightly deflexed-spreading, about $\frac{3}{4}$ lin. long and broad, subquadrate, acutely bifid, with (always?) a minute tooth at the base of the broadly rounded notch, dark chocolate, with yellowish margins (?);

Inner corona: lobes about 1 lin. long from the shoulder, subhorizontally incumbent upon the backs of the anthers and slightly longer than them, but not or scarcely erect at the tips, ovate-lanceolate, acuminate, slightly gibbous on the back at the base, yellow, with the gibbosity and probably the margins purple-brown.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

The "wart-like flowered *Stapelia*" ranks as one of the best known members of the



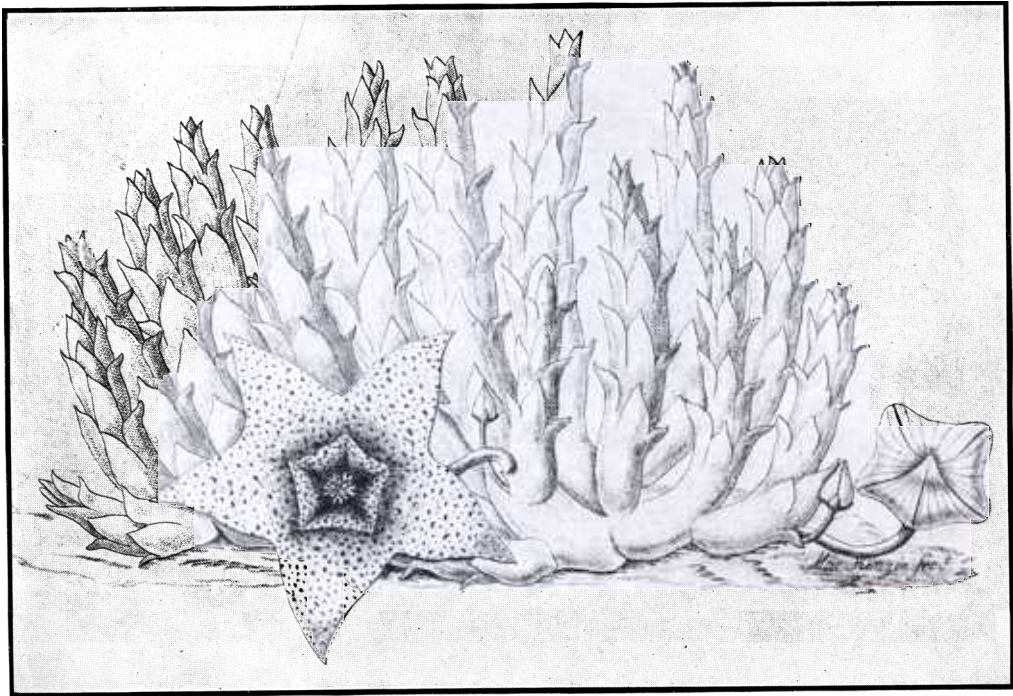
FIG. 372

Stapelia verrucosa Masson variety x 1.

genus. Strangely enough Masson's original type has never been rediscovered, but several varieties exist and are widely distributed at the Cape, from Grahamstown to Griqualand West. Their range begins on the south about where that of *Stapelia pulchella* ends.

S. verrucosa has glabrous stems, 2 to 3 inches long, with obtuse angles and characteristic acute projecting teeth. The flowers average 2 inches in size, the corolla pale yellow within, with dark blood-red spots, smaller on the low solid annulus. The corolla surface is very rugose, with small papilla-like tubercles, and it is from these that the specific name derives. The type differs from all the varieties in having five very marked channels radiating from the centre of the corolla to the angles of the annulus, represented in Masson's figure (Fig. 374) by five black rays.

The commonest variety is the var. *pulchra*, which Jacquin mistook for the type form. Many plants are found in collections, simply labeled *S. verrucosa*, without attention to varietal distinctions, and it is safe to say that two-thirds of these belong to the var. *pulchra*. Often the varieties are quite puzzling to distinguish, especially from photographs, and intermediate forms exist to complicate the identifications.



Stapelia verrucosa

Var. a. *Stapelia verrucosa* var. *pulchra* (Haworth) N. E. Brown, Flora Cap., iv. i. 987. 1909.

Stapelia verrucosa Jacquin, Stap., t. 18. 1806-19. *Nec* Masson, 1796.

Podanthes pulchra Haworth, Syn. Pl. Succ., 32. 1812.

Stapelia irrorata Loddiges, Bot. Cab., t. 127. 1818. *Nec* Masson, 1796.

Stapelia pulchra Schultes, Syst. Veg., vi. 28. 1820.

(Description by Dr. Brown, l.c.):

Stems: 3 to 4½ lin. thick excluding the teeth, sometimes mottled with dull purple;

Corolla: spots varying from purple to dark purple-brown; *annulus* ½ to ¾ lin. high, purple at the pentagonal bottom of the cup, without distinct channels radiating from the centre to the angles;

Outer corona: lobes obtusely or acutely bifid, without a minute tooth in the rounded notch, dark chocolate, with or without yellowish margins, shining;

Inner corona: lobes ½ to 1 lin. long from the shoulder, ovate and obtuse to lanceolate and acuminate, shorter to slightly longer than the anthers, sometimes slightly ascending, but not meeting at the tips, yellow, with the margins and a stripe from the gibbosity down the back chocolate;

Follicles: 4½ to 5 in. long, ½ in. thick, fusiform, acuminate, smooth, glabrous, striped with purple-brown; *seeds* about 3 lin. long and 2¼ lin. broad, ovate, flat, smooth, light brown, with a broad somewhat inflated ochreous-brown shining margin;

Otherwise as in the type.

Type locality: Unknown.

Distribution: Cape Prov.: Uniondale; Bathurst; Albany; Komgha; Cathcart; East London; Queenstown; Somerset East; Cradock; Graaff Reinet; Albert; and Prieska districts; and Griqualand West.

In this "beautiful variety," the uniform purple centre inside of the pentagonal annulus persists, and the principal difference from the type lies in the absence of the dis-

ting channels radiating from the centre of the annulus.

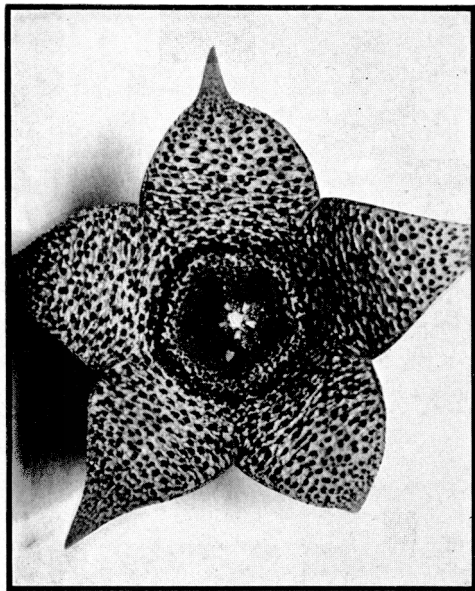


FIG. 375

Stapelia verrucosa var. *pulchra* N. E. Brown x 1.5

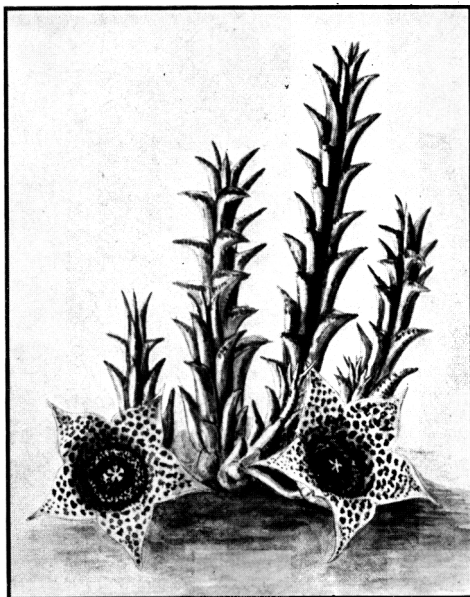


FIG. 376

Stapelia verrucosa var. *pulchra* N. E. Brown
x 0.75

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932.

Var. b. *Stapelia verrucosa* var. *robusta* N. E. Brown, *Flora Cap.*, iv. i. 988. 1909.

Stapelia verrucosa Curtis, *Bot. Mag.*, t. 786. 1809. *Nec* Masson, 1796.

Podanthes pulchra var. *beta* Haworth, *Syn. Pl. Succ.*, 33. 1812.

Podanthes pulchra var. *major* Sweet, *Hort. Brit.*, 1 Ed., 278. 1827.

Podanthes pulchra var. *verrucosa* G. Don, *Gen. Hist.*, iv. 118. 1838.

(Description by Dr. Brown, l.c.):

Stems: very stout, 5 to 8 lin. thick excluding the teeth, green, sometimes mottled with dull purplish;
Corolla: as in the var. *pulchra*, with a purple-brown area at the bottom of the cup formed by the annulus;

Otherwise as in the type.

Type locality: Unknown.

Distribution: Cape Prov.: Somerset East Distr.: Glen Avon Estate.



FIG. 377

Stapelia verrucosa var. *robusta* N. E. Brown x 0.5

From Curtis's Botanical Magazine, 1809.

In this variety, called var. *robusta* on account of its very stout stems, the area within the annulus is again uniformly purple-brown. It has been in cultivation since the early 19th century, but more recently has been collected by Mr. Pillans 2 miles east of Somerset East, on the Glen Avon Estate, where the varieties *pallescens*, *roriflua* and *conspicua* were also found.

Var. c. *Stapelia verrucosa* var. *punctifera* N. E. Brown, *Flora Cap.*, iv. i. 988. 1909

(Description by Dr. Brown, l.c.):

Stems: 4 to 5 lin. thick excluding the 2 to 4 lin.-long teeth, mottled and striped with dull purplish

Corolla: very pale or creamy-yellow, marked with very small spots or minute pale purple dots;

Outer corona: light purple;

Otherwise as in the var. *pulchra*.

Type locality: Cape Prov.: Alexandria Distr.: "Bellevue."

Distribution: Not further known.

The "dotted variety" was discovered by Mr. Brocklebank, about 1900. It derives its name from the characteristic dotting over of the corolla face in pale purple on a creamy-yellow ground.

Var. d. *Stapelia verrucosa* var. *pallidescens* N. E. Brown, *Flora Cap.*, iv. i. 988. 1909.

(Description by Dr. Brown, l.c.):

Corolla: with a distinct cup or basin-like tube about 4 lin. deep, measured outside; lobes much acuminate, very pale yellow, with small purple-brown or brownish-red dots; Otherwise as in the var. *pulchra*.

Type locality: Cape Prov.: Somerset East Distr.: Glen Avon Estate.

Distribution: Not further recorded.

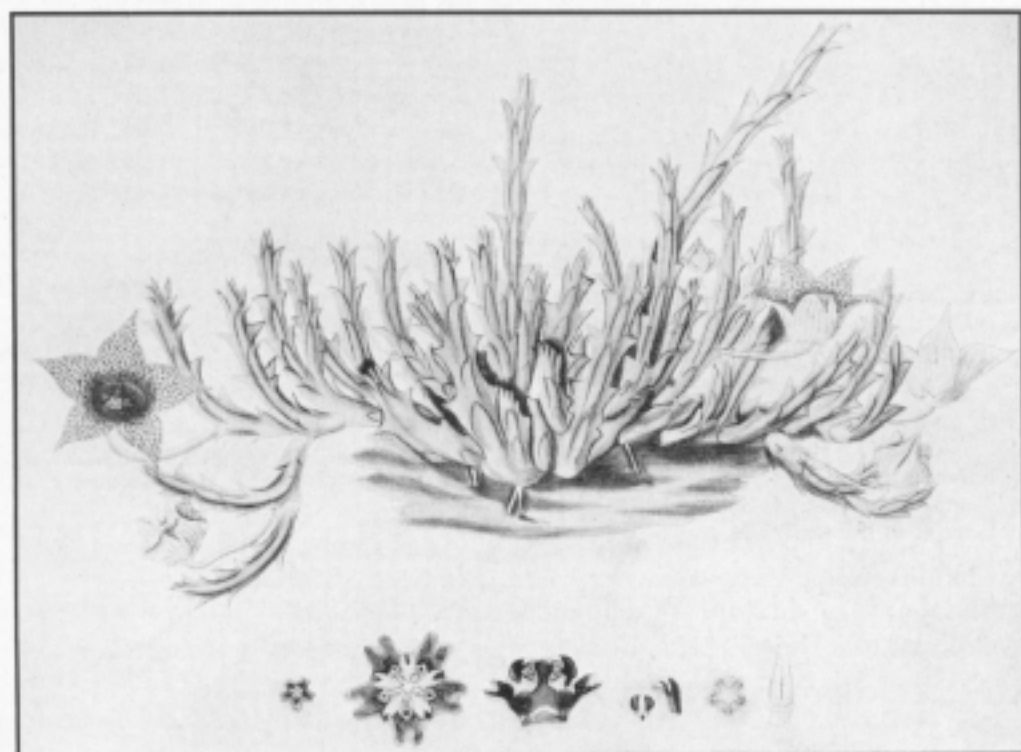


FIG. 378

Stapelia verrucosa var. *roriflua* N. E. Brown x 0.3
From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

Var. e. *Stapelia verrucosa* var. *roriflua* (Jacquin) N. E. Brown, *Flora Cap.*, iv. i. 988. 1909.

Stapelia roriflua Jacquin, *Stap.*, t. 19. 1806-19.

Stapelia rugosa Wendland, *Coll. Pl.*, ii. 41. 1809-19. *Nec* J. Donn, 1804.

Stapelia wendlandiana Schultes, *Syst. Veg.*, vi. 39. 1820.

Orbea wendlandiana Schultes, *Syst. Veg.*, vi. 834. 1820.

Podanthes roriflua Sweet, *Hort. Brit.*, 1 Ed., 278. 1827.

Piaranthus rorifluus Decaisne, de Candolle: *Prodromus*, viii. 664. 1844.

(Description by Dr. Brown, l.c.):

Corolla: with a distinct cup or basin-like tube 4 to 5 lin. deep outside, light yellow or pale greenish-yellow, spotted with larger and darker (sometimes "almost black," *Pillans*) spots than in the

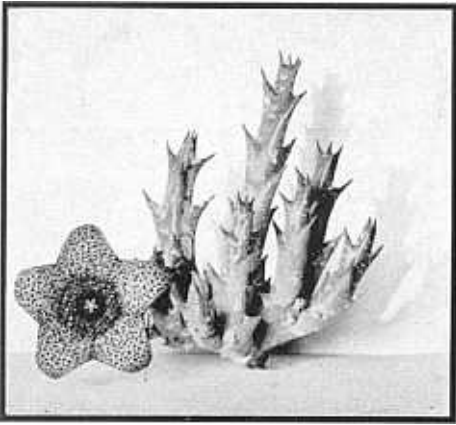
Stapelia verrucosa

var. *pallescent*; *annulus* often (always?) adnate to the wall of the tube and somewhat resembling a shelf-like thickening of it around the corona;

Otherwise as in the var. *pulchra*.

Type locality: Unknown.

Distribution: Cape Prov.: Somerset East Distr.: Glen Avon Estate.



Here the central tube of the corolla is deeper and the markings are carried almost to the centre somewhat as they are on the lobes, so that the centre within the annulus no longer appears of uniform color. This variety was considered by Baron de Jacquin to be a distinct species, which he called the "dew-flowing Stapelia," because the outer corona-lobes exude little drops of water for several days after the flowers open.

FIG. 379

Stapelia verrucosa var. *roriflua* N. E. Brown x 0.5

Var. f. *Stapelia verrucosa* var. *conspicua* N. E. Brown, Flora Cap., iv. i. 988. 1909.

(Description by Dr. Brown, l.c.):

Stems: 4 to 5 lin. thick excluding the 2 to 3 lin. long teeth, green;

Corolla: about $1\frac{3}{4}$ in. in diameter, with the united part saucer or shallowly basin-shaped 2 to $2\frac{1}{2}$ lin. deep outside, light yellow, marked with rounded dark purple-brown spots about 1 lin. in diameter, much larger than in any other variety;

Otherwise as in the var. *pulchra*.

Type locality: Cape Prov.: Somerset East Distr.: Glen Avon Estate.

Distribution: Also on slopes of the Boschberg.

A "conspicuous variety" because of the large size of the spots on the corolla face.

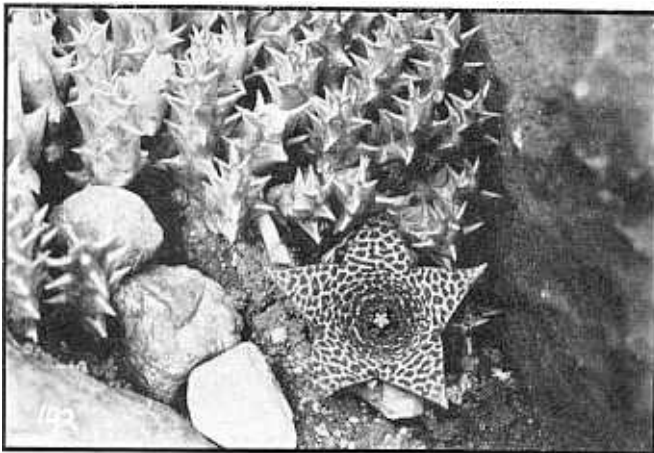


FIG. 380

Stapelia verrucosa var. *conspicua* N. E. Brown x 0.5

From Mountain Drive, Somerset East. Photo: G. W. Reynolds, Johannesburg.

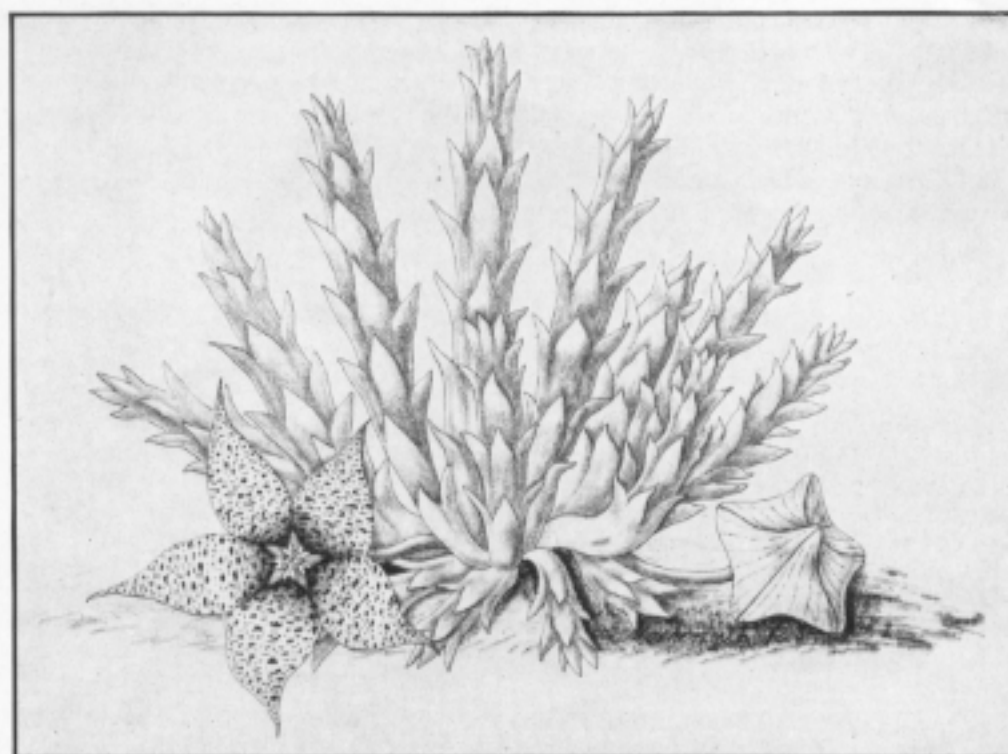


FIG. 381

Stapelia irrorata Masson x 0.75

From Masson: *Stapeliae Novae*, 1796.

8. *Stapelia irrorata* Masson, Stap. Nov., 12. 1796.

Podanthes irrorata Haworth, Syn. Pl. Succ., 33. 1812.

(Description by Dr. Brown, *Flora Cap.*, iv. i. 986):

Stems: erect, decumbent at the base, $1\frac{1}{2}$ to $3\frac{1}{2}$ in. long, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick excluding the teeth, obtusely 4-angled, glabrous, green; teeth conical, acute, spreading, 2 to 3 lin. long;

Flowers: solitary (always?) at the base of the stems;

*Pedice*l: about 1 in. long, glabrous;

Sepals: ovate, acute, glabrous;

Corolla: about $2\frac{3}{4}$ in. in diameter, pentagonal and acutely pointed in bud, glabrous and smooth outside, rugose on the glabrous inner face; *disk* depressed or saucer-shaped, purplish, according to the figure; annulus none; *lobes* spreading, $\frac{3}{4}$ to 1 in. long, 7 to 8 lin. broad, ovate, acuminate, not ciliate, pale yellow spotted and dotted with blood-red (purple-brown?);

Corona: unknown.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

This species, according to Dr. Brown, "only appears to differ from *S. verrucosa* by the corolla being destitute of an annulus." Masson placed it next to *S. verrucosa*

and stressed the absence of the annulus. It is not known in what section of the Cape he discovered it, nor has it been seen since his day. One is almost brought to think it

may represent a freak form of *S. verrucosa*, similar to a *Stapelia variegata* we once saw which, on a crested stem, produced a flower perfect in other particulars, but devoid of the usual annulus. The signification of the name, *S. irrorata*, which means the "Stapelia moistened with dew," is not clear, un-

less it refers to the outer corona-lobes exuding droplets of water. This was seen to be a characteristic of *S. verrucosa* var. *roriflua*, and it is possibly also a peculiarity of the present plant. Nothing definite, however, is known about the corona, so this is mere speculation.

9. *Stapelia parvipuncta* N. E. Brown, Icon. Pl., t. 1923. 1890.

Stapelia parvipunctata K. Schumann, Engler & Prantl: Pflanzenfam., iv. ii. 278. 1895.

(Description by Dr. Brown, Flora Cap., iv. i. 976):

Stems: erect, somewhat crowded, 2 to 5 in. long, $\frac{1}{2}$ to $\frac{2}{3}$ in. square, obtusely 4-angled, grooved down the sides, very shortly toothed on the angles, the teeth tipped with rudimentary subulate leaves $\frac{1}{2}$ lin. long, glabrous, dull green;

Flowers: several together, successively developed on a stout gradually elongating peduncle near the base or middle of the young stems;

*Pedice*l: $\frac{3}{4}$ to 2 in. long, glabrous, spreading or directed downwards;

Sepals: 1 to $2\frac{1}{2}$ lin. long, ovate or lanceolate, acute or acuminate, glabrous;

Corolla: in bud flat, pentagonal, with very short points at the angles; when expanded 1 to $1\frac{1}{4}$ in. in diameter, lobed to half-way down, flat, without a distinct tube, quite glabrous on both sides, but ciliate along $\frac{2}{3}$ of the length of the lobes with long vibratile clavate purple hairs, smooth and pale green thickly spotted with purple-brown on the back; inner surface slightly rugulose, varying from very pale sulphur-white to pale greenish-yellow, everywhere covered with minute dust-like dots of purple-brown or those on the lobes much larger than those on the disk, sometimes the lobes are narrowly margined with purple-brown; lobes $3\frac{1}{2}$ to 5 lin. long and as much in breadth, broadly ovate or deltoid-ovate, acute, flat, recurving;

Outer corona: lobes 1 to $1\frac{1}{4}$ lin. long, deeply bifid, with the rectangular basal part ascending-spreading and the subulate teeth recurving and diverging, dark purple-brown, shining;

Inner corona: lobes simple, ovate or ovate-lanceolate, acute or acuminate, horizontally incumbent on the backs of the anthers, in some flowers shorter than them, in others longer, with their tips crossing one another, but not erect, not gibbous behind, purple-brown.

Type locality: Cape Prov.: Beaufort West (or Fraserburg?) Distr.: Nieuwveld Mts.

Distribution: Also from Laingsburg Distr.: near Laingsburg; near Matjesfontein; Prince Albert Distr.: near Prince Albert Road; Griqualand West: Douglas.

The "Stapelia with the little dots" was discovered by Thomas C. Bain in the west-

erly part of the Great Karroo area, about 1875. It is a very individualized species, differing from all the other members of the genus alike in the stems and flowers. The 2 to 5-inch stems form tufted clumps. They have obtuse angles and very short teeth,

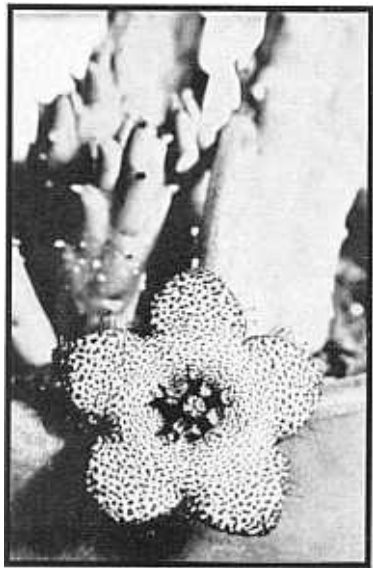


FIG. 382

Stapelia parvipuncta N. E. Brown x 0.75

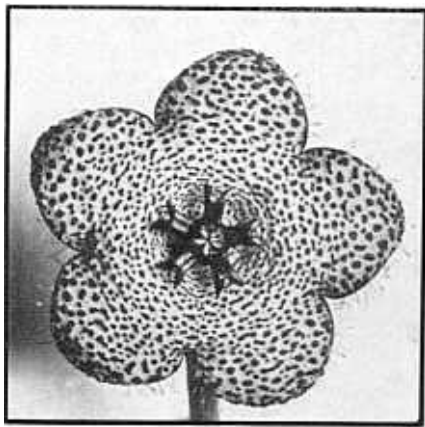


FIG. 383

Stapelia parvipuncta N. Brown

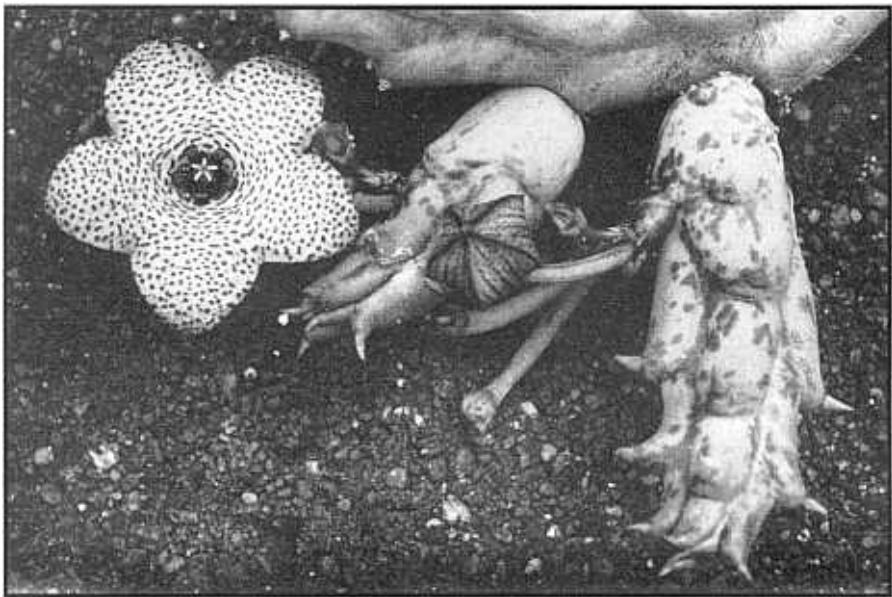


FIG. 384

Stapelia parvipuncta var. *truncata* Luckhoff x 1.6
Photo by Carl Luckhoff.



PLATE IX.

Stapelia parvipuncta N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1932.

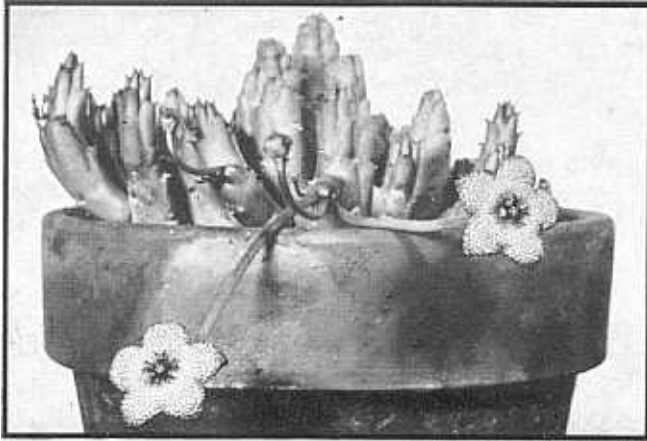


FIG. 385

Stapelia parvipuncta N. E. Brown x 0.5

tipped with rudimentary leaves, and a definite groove between the angles. The flowers are borne on long pedicels, sometimes 2 inches long, several growing together on a stout peduncle and flowering successively. The inner corolla face is pale sulphur-yellow, covered with small purple-brown dots, whence the name, the spots on the lobes somewhat larger. The fabric of the disk is slightly thickened, more in some flowers than in others, but never enough to

form an actual annulus. The flowers are glabrous, but the corolla-lobes are fringed with long clavate vibratile purple hairs. The beautiful shining brown outer corona, whose lobes are deeply bifid with unique recurving tips, can be distinguished in Fig. 383. The inner corona-lobes are simple, bending over the anthers in *Caralluma* fashion. Apart from the corona the flowers are somewhat reminiscent of those of *S. jucunda*.

Var. a *Stapelia parvipuncta* var. *truncata* Luckhoff, var. nov

(Description by C. Luckhoff):

Corolla: lobes not ciliate;

Outer corona: lobes shorter than in the type, recurved at the tips and either truncate or minutely notched at the apex;

Otherwise as in the type.

Type locality: Cape Prov.: Ceres Distr.: on the banks of the Dwequa.

Distribution: Not further known.

This "truncate variety" was discovered by Dr. J. Luckhoff in 1931. As the name suggests, it differs from the type principally

in the shape of the outer corona-lobes, which are truncate or minutely notched, instead of subulate as in the type.

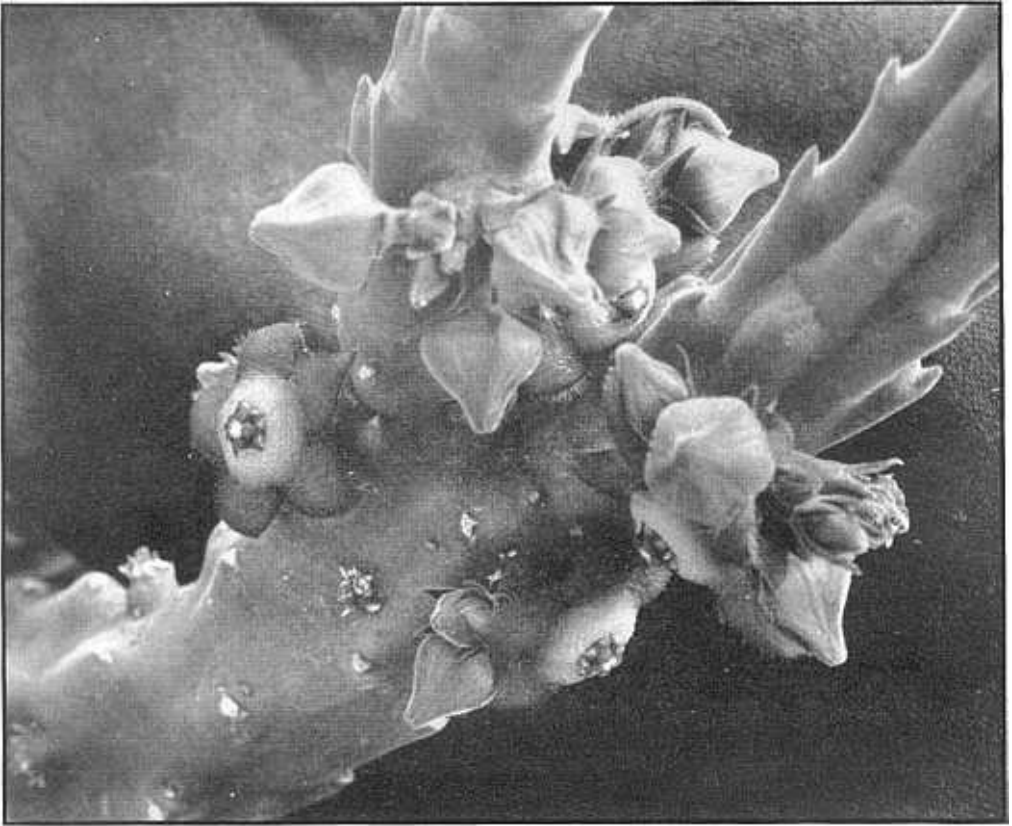


FIG. 386

Stapelia rubiginosa Nel x 1.5

Photo by Carl Luckhoff.

10. *Stapelia rubiginosa* Nel, Kakteen-Jahrb., 20. 1936.

(Description based on that by Dr. G. C. Nel, l.c., translated from the Latin and German) :

Stems: tufted, erect, 2.7 to 5 cm. high, 8 to 12 mm. thick, deep purple near the apex, greenish towards the base, minutely puberulous, thereby giving a grey tone to the purple color, 4-angled, with flat grooves between the angles; angles rounded, not prominent, with small acute subulate teeth and some white scars on the older stems;

Flowers: in fascicles of 3 to 5, from the middle of the stems;

*Pedice*l: 4 to 5 mm. long, pubescent with very short stiff hairs;

Sepals: 3 mm. long, linear-lanceolate, acute, sparsely pubescent;

Corolla: rotate, 2 cm. in diameter; outside greenish with purple stripes, stiffly hairy; inside rugose, greenish-yellow; *lobes* ovate, acute, transversely rugose, yellowish-purple with many purple dots, thickly ciliate with purple hairs nearly 1 mm. long;

Outer corona: lobes linear-ovate, with a distinct groove down the middle, acute; apparently reddish, but actually (under a lens) brownish-purple, the groove darker than the edges, which have a yellow tone;

Inner corona: lobes ovoid, incumbent on the anthers and not produced above them, with a short stiff white pubescence on the upper side, dark purple at the base, obtusely emarginate and with a linear yellow tubercle at the apex.

Type locality: Cape Prov.: Little Namaqualand: Richtersveld: Remhoogte, near Stinkfontein.

Distribution: Also from Kliphoogte.

The "rusty Stapelia" was discovered by H. Herre on his expedition to the Richtersveld in September, 1929. The flowers have an unusually wrinkled corolla surface, the yellowish-purple color of the lobes con-

trasting with the more greenish tone of the disk, which in the figures appears to be somewhat thickened in the semblance of an annulus.

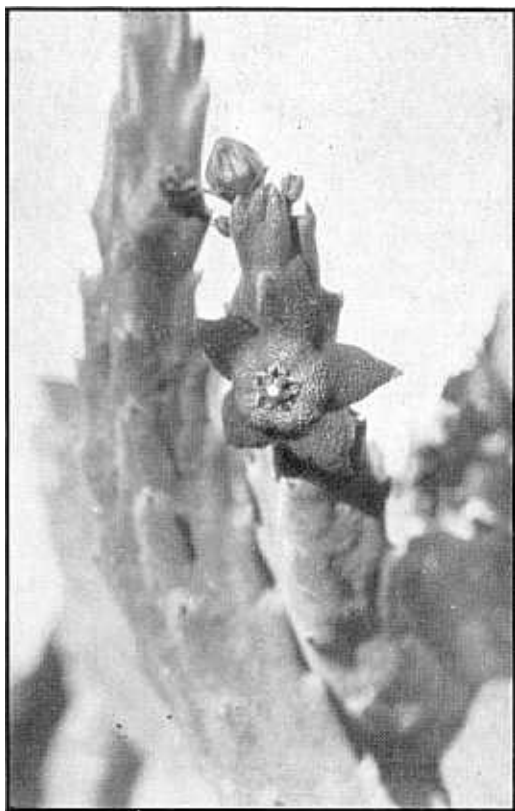


FIG. 387

Stapelia rubiginosa Nel

Photo by H. Herre in Kakteen Jahrbuch, 1936.

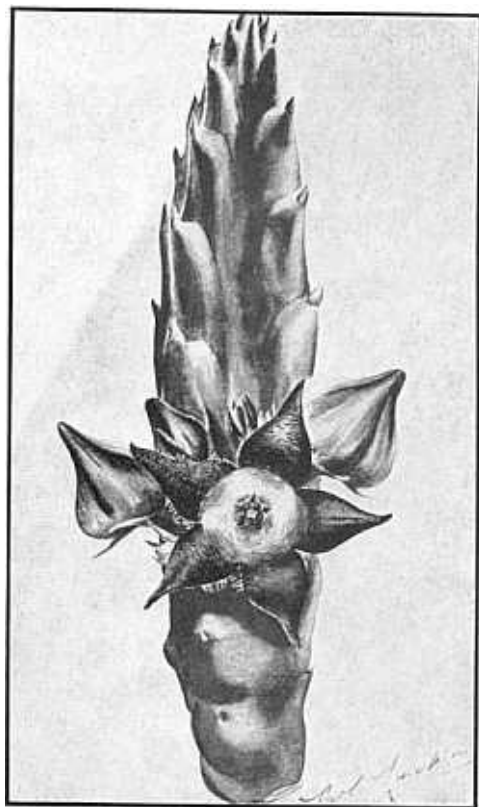


FIG. 388

Stapelia rubiginosa Nel x 1.4

From a water color drawing by Carl Luckhoff.

11. *Stapelia stultitoides* Luckhoff, nom. nov.*Stapelia beukmanii* Luckhoff, So. Afr. Gard. 96. 1935. *Nec* Luckhoff, 1934.

(Description by C. Luckhoff, l.c.):

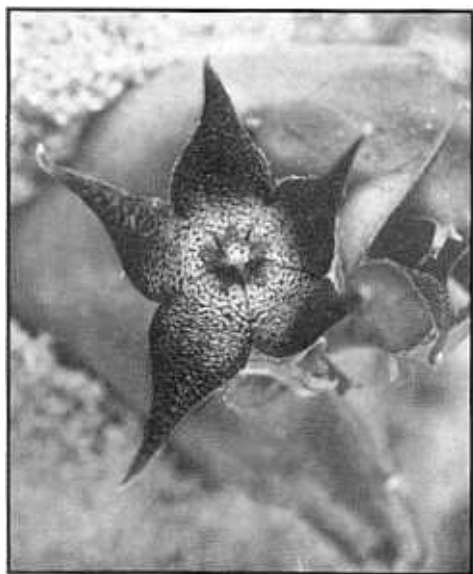
Stems: up to 9 cm. long, branching near the base, 1 cm. thick, acutely 4-angled, the angles raised into acute tubercles with small rudimentary leaves, dull green, pubescent;*Flowers*: in fascicles of 2 to 4, arising from stout peduncles;*Pedicel*: 3 to 5 mm. long, pubescent;*Sepals*: 5 mm. long, acute, pubescent;*Corolla*: 4 cm. in diameter; the outer surface pubescent, dull green, tinged with purple; the inner surface rugose, deep purple-black, the united portion and base of the lobes white, without a distinct tube, the united portion raised into a distinct, yet not very prominent annulus; lobes spreading, 1.5 cm. long, 6.5 mm. broad at the base, which is ovate, with the apical half of the lobes narrow and attenuate, sparsely ciliate with small white hairs;*Outer corona*: lobes 1.25 mm. long, truncate, moistened with a viscous secretion to which small grains of sand are adherent, dull yellow;*Inner corona*: lobes vertically incumbent on the anthers and shorter than them, with a spreading acute laterally compressed expansion 2 mm. long, light purple.*Type locality*: Cape Prov.: Clanwilliam Distr.: near Clanwilliam.*Distribution*: Not further known.

FIG. 389

Stapelia stultitoides Luckhoff x 1.7

Photo by Dr. J. Luckhoff, in *South African Gardening and Country Life*, 1935. The photographs of this species do not adequately show the annulus of the corolla.

The "Stultitia-like *Stapelia*," discovered in 1935 by C. Beukman near Clanwilliam, is one of those puzzling species, on the borderline between *Caralluma* and *Stapelia*

which prove so tantalizing to the taxonomist. It shares characteristics of both genera, with a strong dash of *Stultitia*, so that the determination of its classification must be decided by a general consideration of the flowers as a whole rather than on the basis of the corona form or any other single element. Mr. Luckhoff has given an admirable discussion of the problem and its solution: "The species," he says, "is so closely related to *S. arenosa* that the two must of necessity be considered under the same genus. The connate outer corona-lobes suggest the inclusion of *S. stultitoides* in *Caralluma*, from which, however, it must be excluded because of its corolla-annulus. The annulus in turn suggests its allocation to *Stultitia*, from which its affinity to *S. arenosa*, which has no annulus, must exclude it. This leaves only *Stapelia*, in which happily in the section *Podanthes* we find very similar coronal mechanisms. For although the inner corona-lobes are apparently intergrown with the outer corona-lobes, yet it is possible to separate them intact, the union being by a kind of joint, exactly as is the case for instance in

S. portae-aurinae. And the inclusion in *Stapelia* is confirmed by several more general characters. The habit of the plants is typical, the stems are 4-angled and pubescent, the latter a condition very exceptional in *Caralluma*, and the corolla conforms to a pattern often seen in *Stapelias*, as for instance in *S. acuminata*." With *S. arenosa*, *S. stultitoides* possesses a very singular property, of which Mr. Luckhoff

says: "The outer corona-lobes are unique in being moistened with a copious sticky secretion, to which small grains of sand readily adhere. This has suggested the name *S. arenosa* for the second species, although both are equally "sandy." The secretion of the nectar responsible for this condition occurs at the base of the outer corona-lobes, as pointed out by Dr. Marloth in the *Flora of South Africa*, iii. i. 69."



FIG. 390

Stapelia stultitoides Luckhoff x 1

Photo by Carl Luckhoff.

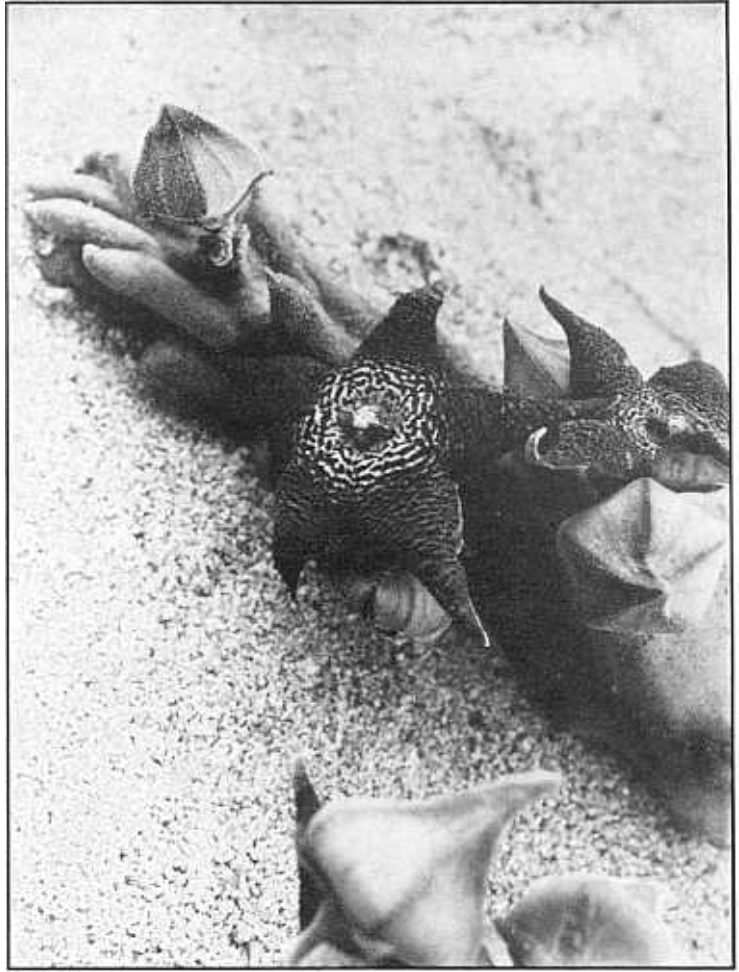


FIG. 391

Stapelia arenosa
Luckhoff x 2.

Photo by Carl Luckhoff, in
South African Gardening
and Country Life, 1935.

12. *Stapelia arenosa* Luckhoff, So. Afr. Gard., 96. 1935.

(Description by C. Luckhoff, l.c.):

Corolla: 3 cm. in diameter, the united portion thickened, but not raised into a distinct annulus, dark purple-black, with a narrow white zone around the corona; *lobes* 9 to 10 mm. long, 5 mm. broad at the base, reflexed from the base, with the edges recurved;

Outer corona: lobes with acute tips;

Inner corona: lobes as long as the anthers, with the dorsal expansion smaller than in *S. stultitoides*; Otherwise as in *S. stultitoides*.

Type locality: Cape Prov.: Clanwilliam Distr.: without precise locality.

Distribution: Not further known.

This is the second of two new *Stapelias* recently discovered by Mr. Beukman. The flowers are smaller, and do not have the corolla-annulus typical of *S. stultitoides*, but instead just a faint thickening of the disk.

13. *Stapelia miscella* N. E. Brown, Flora Cap., iv. i. 977. 1909.

(Description by Dr. Brown, l.c.):

- Stems*: often several inches long, creeping underground and producing at intervals erect branching stems $1\frac{1}{2}$ to $2\frac{1}{2}$ in. high, 2 to 4 lin. thick, obtusely 4-angled, with spreading acute teeth $\frac{1}{2}$ to $\frac{3}{4}$ lin. long, glabrous, dull green suffused with purple;
- Flowers*: apparently solitary near the middle or base of the young branches;
- Pedicel*: 2 to $2\frac{1}{2}$ lin. (lengthening in fruit to 6 lin.) long, glabrous;
- Sepals*: 1 to $1\frac{1}{4}$ lin. long, $\frac{1}{2}$ lin. broad, ovate or ovate-lanceolate, acuminate, glabrous;
- Corolla*: $\frac{1}{2}$ in. in diameter, rotate, without any tube, but with a raised cushion-like ring on the disk around the corona about $\frac{1}{3}$ lin. high, quite glabrous and not ciliate, dark purple-brown, somewhat lighter at the centre; *lobes* spreading, $2\frac{1}{2}$ lin. long and nearly $1\frac{1}{2}$ lin. broad, ovate-lanceolate, acuminate or very acute, faintly rugulose on the inner face;
- Outer corona*: lobes horizontally radiating, $\frac{1}{3}$ lin. long, $\frac{1}{2}$ lin. broad, transversely rectangular, slightly notched at the apex, very dark purple-brown or almost blackish;
- Inner corona*: lobes scarcely $\frac{1}{2}$ lin. long, lanceolate, subobtusely, erect, with their tips slightly incurved upon the backs of the anthers, but much shorter, colored like the outer corona-lobes;
- Follicles*: erect, slightly diverging, $1\frac{1}{2}$ in. long, about 2 lin. thick, terete-fusiform, acutely beaked, smooth, glabrous, mottled with olive-green or purplish on a pale ground; *seeds* $2\frac{1}{2}$ lin. long, $1\frac{1}{4}$ lin. broad, ovate, nearly flat, broadly margined, smooth, light ochreous-brown, with a tuft of hairs $\frac{1}{3}$ in. long.

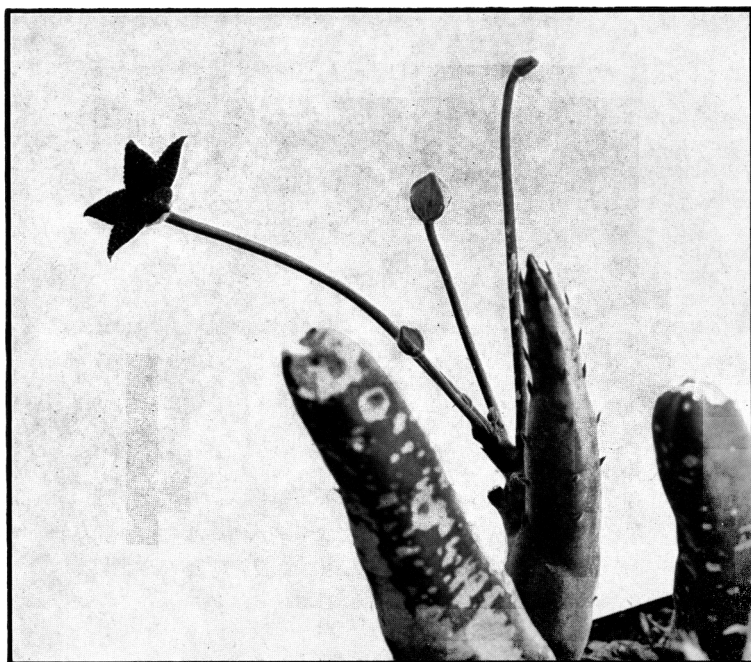
Type locality: Cape Prov.: Jansenville Distr.: near Klipplaat.

Distribution: Not further known.

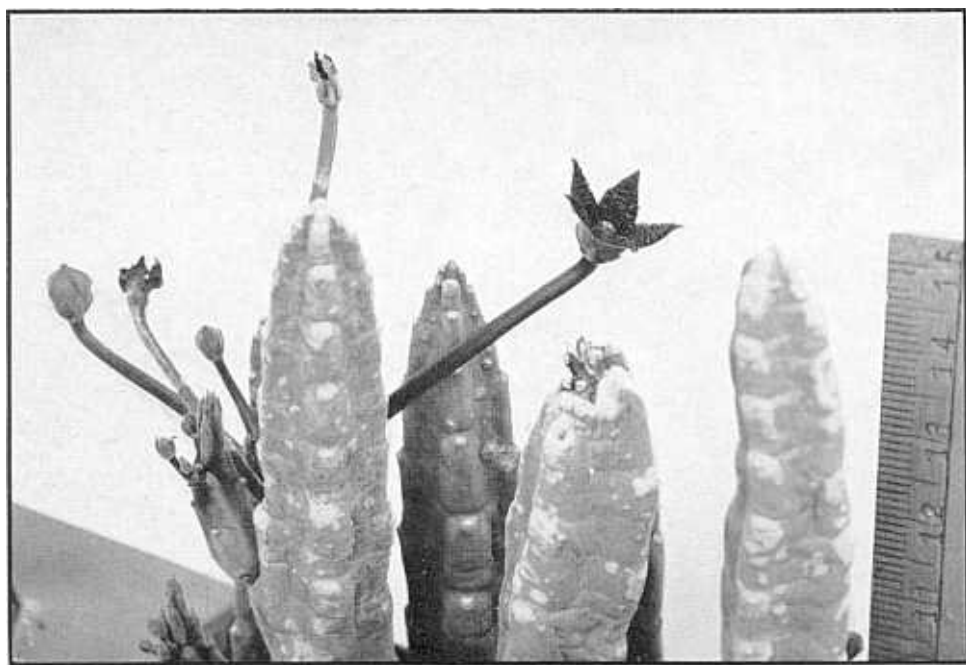
A species so extraordinary that one may well translate its name: "the hodge-podge *Stapelia*." The stems creep underground, producing at intervals erect branching stems $1\frac{1}{2}$ to $2\frac{1}{2}$ inches tall. This mode of growth recalls the habit of *Caralluma indica*. The $\frac{1}{2}$ -inch flowers are dark purple-brown, glabrous, with a low cushion-like annulus. Dr. Brown comments on the plant, saying that it is "of very ambiguous affinity, and almost certainly of hybrid origin between a *Duvalia* and some other

genus, possibly a *Caralluma*. The creeping underground habit of its stems is like that of some species of *Duvalia* and *Pectinaria*, whilst the outer corona resembles that of *Stapelia verrucosa*, on which account and because of the presence of the ring on the disk of the corolla I place it under this genus."

Discovered by Mr. Pillans, in the easterly portion of the Great Karroo region, near Klipplaat, neighboring the habitat of *S. verrucosa*.



Stapelia juttae Dinter
by



Stapelia juttae Dinter
plant from Noachab, South West Africa

14. *Stapelia juttae* Dinter, Neue Pfl. Deutsch-Südw.-Afr., 53. 1914.

(Description by Prof. K. Dinter, l.c., translated from the German) :

Plant: forming large dense tufts; *stems* 5 to 12 cm. high, 1 to 2 cm. thick, tapering towards the apex, 4-angled, with erect subulate leaves; 2 mm. long, which together with the stems are minutely pubescent;

Flowers: 8 to 10, successively produced from peduncles on the lower part of the stems; peduncles rather numerous, often two on one stem, up to 2 cm. long, 5 to 6 mm. thick;

Pedicels: 7 to 8 cm. long, spreading straight out and lying on the ground, radiating in large numbers all around the plant, densely pubescent; *pedicels* of fertilized flowers gradually become vertically erect;

Sepals: 5 mm. long, 1½ mm. broad, subulate;

Corolla: in bud shortly before opening 9 mm. long, 8 mm. in diameter, globular, pentagonal, pubescent under a lens; when expanded 17 mm. in diameter from the tip of one lobe to the opposite sinus, 21 mm. from point to point, uniformly brown-black, minutely pubescent on outer surface, inner face transversely very rugose and scarred, glabrous, without ciliation (the fine pubescence visible at the edges under a lens belongs to the outer surface); *tube* crater-shaped, completely enclosing the corona; *lobes* 7 mm. long, 5 mm. broad at the base, the margins recurved;

Outer corona: none;

Inner corona: lobes growing out of the staminal column, triangular at the base and with a triangular groove there, gradually becoming acuminate, with a longitudinal ridge on the upper part, incumbent over the anthers, black-brown.

Type locality: South West Africa: near Aus.

Distribution: Also recorded from Kanus.

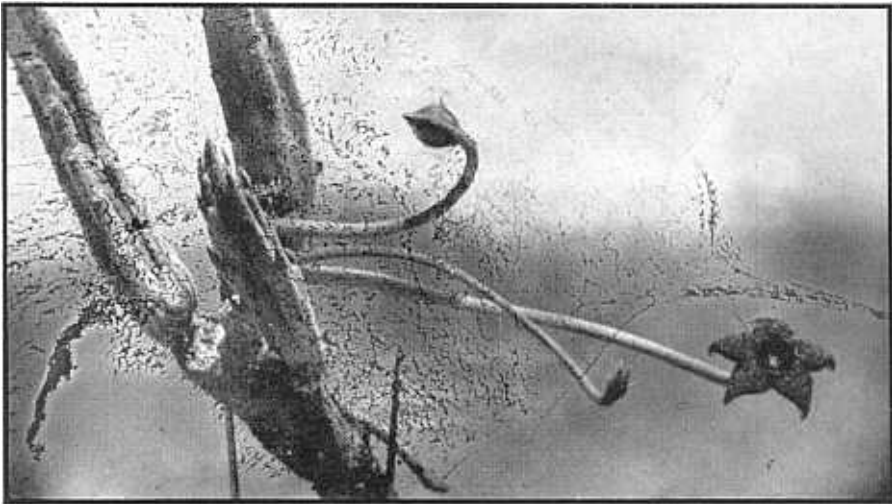


FIG. 393

Stapelia juttae Dinter x 1.

Photo by Prof. Dinter in Neue Pfl. D. S.-W. Afr., 1914.

A unique *Stapelia*, for the outer corona is entirely absent. Aside from this feature, the plant belongs intimately within the *kwebensis* clan. The pedicels are even longer than in the "long pediceled variety," and they radiate all around the plant, the striking little flowers lying upon the ground with their faces turned up, like so many black-brown pickaninnies looking up at the sun. In discussing *S. similis*, we shall see the close connection which certainly exists between it and *S. juttae*.

The habitat of this species is in the southern part of South West Africa, and if a right-angled triangle, with sides 500 miles in length, were traced on the map of Africa, with its apex in Ovamboland where Schinz discovered *S. kwebensis* var. *longipedicellata*, one end of the triangle's base would lie almost due east at Kwebe, home of the type of *S. kwebensis*, while the other end would be due south at Aus, where in December, 1910, Frau Jutta Dinter first collected her unique "Jutta's Stapelia."

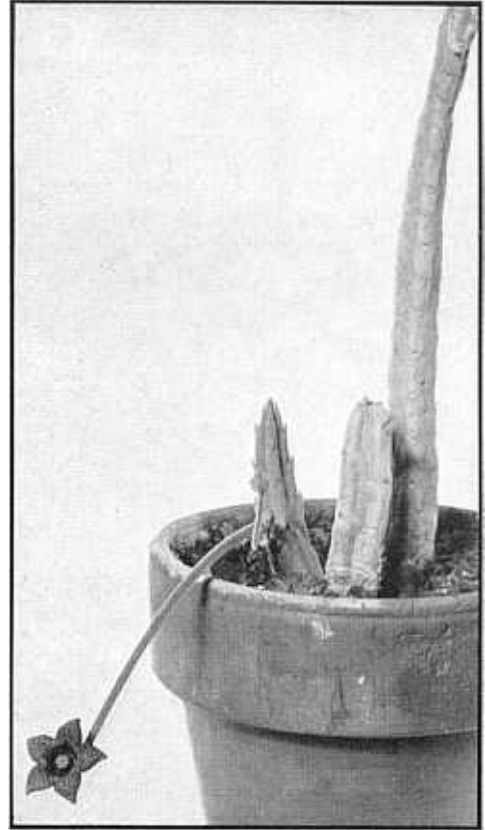


FIG. 394

Stapelia juttae Dinter x 0.5

15. *Stapelia portae-aurinae* Dinter et Berger, Engler: Jahrb., Suppl. 592. 1914.

(Description by Prof. K. Dinter and A. Berger, l.c., translated from the Latin):

Plant: tufted; *stems* 5 to 20 cm. high, pubescent, 4-angled, grooved between the rounded angles or in cross-section more or less square, with small teeth and appressed leaves, deltoid-subulate, pubescent, 3 to 4 mm. long;*Flowers*: sufficiently numerous, growing on thick peduncles from the base of the stems, with long pedicels bending over to the ground;*Bracts*: minute, subulate;*Pedicel*: 4 to 5 cm. long, pale green, pubescent;*Sepals*: narrowly lanceolate-deltoid, 5 mm. long, pubescent;*Corolla*: in bud subpentagonal, pubescent; when expanded glabrous within, pale yellow transversely warty and furrowed with brown, especially darker on the annulus and deeply callous-honey-combed, about $2\frac{1}{2}$ cm. in diameter; *tube* shallow, broadly campanulate, subannulate at the mouth; *lobes* 9 mm. long, 7 mm. broad, acute, ovate-deltoid, recurved at the margins;*Outer corona*: lobes very short, broader than long, concave on upper side, rounded or emarginate, dark brown;*Inner corona*: lobes simple, acute, fleshy, incumbent on the anthers and hardly exceeding them in length.

Type locality: South West Africa: Bull's Poort.

Distribution: Also in Great Namaqualand: Aus; Cape Prov.: Little Namaqualand: Richtersveld.

Another relative of *Stapelia kwebensis*, from the edge of the Sandy Desert, in South West Africa, once famous as the home of the Ganin Bushmen. The specific name is a Latinized form of Bull's Poort, near which Pass the plant was discovered by Prof. Dinter in January, 1911. The flowers have the singular habit, shared in slightly less degree by *S. juttae*, of bending their long pedicels downward and laying the corolla face up upon the ground, instead of raising the flowers aloft as the "long pediceled variety" of *S. kwebensis* does so conspicuously. The flowers in other respects resemble those of *S. kwebensis*, but they are wholly glabrous. Their color is a pale yellow, transversely furrowed in brown. The

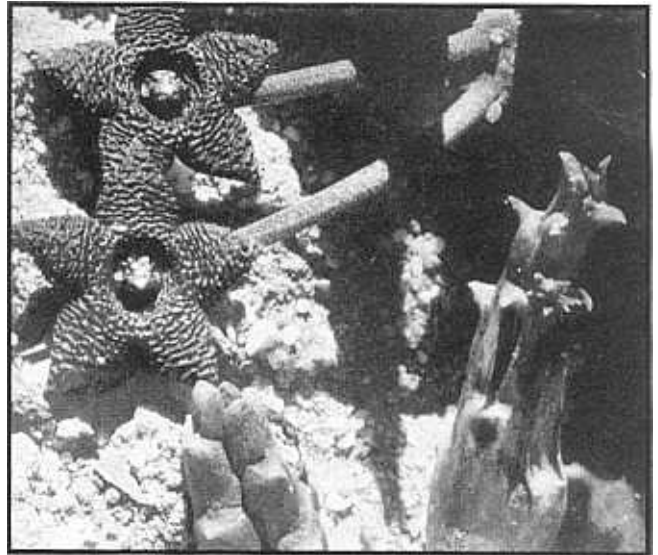


FIG. 395

Stapelia portae-aurinae Dinter x 1.

Photo by Carl Luckhoff.

corona follows the pattern of that of *S. similis*, with the outer corona-lobes extra short and extra broad.

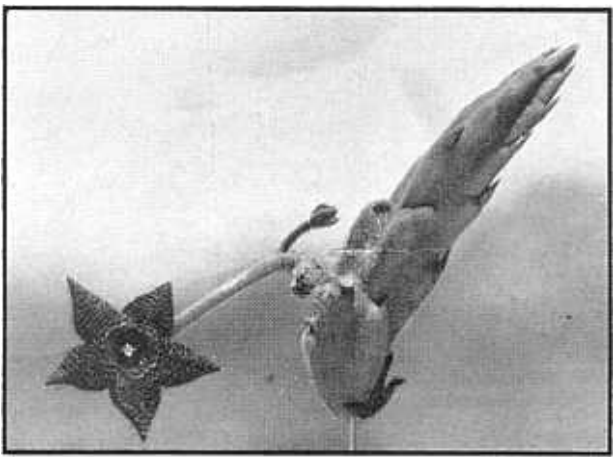


FIG. 396

Stapelia portae-aurinae Dinter x 1.

Photo by Prof. Dinter in Neue Pfl. D. S.-W. Afr., 1914.

16. *Stapelia similis* N. E. Brown, Kew Bull., 358. 1911.

(Description by Dr. Brown, l.c., translated from the Latin):

Stems: erect, 7 to 15 cm. long, 6 to 10 mm. thick, 4 to 6-angled, minutely puberulous, dull purple or ashen-green with purple spots; angles subdenticulate;

Flowers: 3 to 6 from the base of the stems;

Pedicel: 2.5 to 3 cm. long, spreading, puberulous;

Sepals: 4 mm. long, lanceolate, acute, puberulous;

Corolla: rotate, 1.8 cm. in diameter, outside minutely puberulous, inside transversely rugose, glabrous, not ciliate, blackish-purple; *lobes* 6 mm. long and equally broad, ovate, acute;

Outer corona: lobes 0.75 mm. long, 1.5 mm. broad, transversely oblong, entire, glabrous, blackish;

Inner corona: lobes 1.3 mm. long, lanceolate, acute, with a slight projection on the back, incumbent on the anthers.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not further known.

The "similar *Stapelia*" was discovered by Prof. H. H. W. Pearson in Little Namaqualand, while he was with the Percy Sladen Trust expedition to the Orange River in 1910. The name is doubly appropriate, for the species has close connections with the *kwebensis* group on the one hand and with *Stapelia olivacea* and its ally *S. pearsonii* on the other. It is so closely similar to the two last named plants in stems and habit that, according to Dr. N. E. Brown, "when out of flower the three are difficult to discriminate," but the flowers are more distinctive. The flowers of both *S. similis* and *S. pearsonii* are borne on much longer pedicels than those of *S. olivacea*, 1 to 1½ inches as against ¼ inch. Both species also differ from *S. olivacea* in having no ciliation on the corolla-lobes. In other respects *S. similis* is very similar to *S. olivacea* in its corolla, except in the matter of size, the flowers being only ¾-inch in diameter. Finally the inner corona differs from both *S. olivacea* and *S. pearsonii* in having only a single horn, with a slight dorsal gibbosity, and in being wholly incumbent upon the anthers.

The structure of the inner corona seems to take *S. similis* away from the *Gonostemon* section, in which *S. olivacea* and *S. pearsonii* clearly belong, and to identify it

with the *kwebensis* branch of the *Podanthes* section. Dr. N. E. Brown jotted a note on Miss Smith's drawing of the plant,



FIG. 397

An unidentified *Stapelia* seedling, perhaps a hybrid, apparently belonging in the chain of species which leads from *S. similis* in the direction of *S. kwebensis*, x 3.

which said: "Synonym, *S. juttae*." It would seem that the absence of an outer corona in *S. juttae* entitled it to remain an independent species, if this character is a constant one, but the similarity is evidently a near one, and so is the relationship to *S. portae-aurinae*, and it is entirely possible that further study will show that in this entire

chain, from *S. olivacea* to *S. kwebensis*, leading through *S. pearsonii*, *S. similis*, *S. juttae* and *S. portae-aurinae*, at least one more species has been recognized than actually deserves to be maintained. On the other hand forms are occasionally found, which appear to be undescribed and to supply new links in this interesting chain.

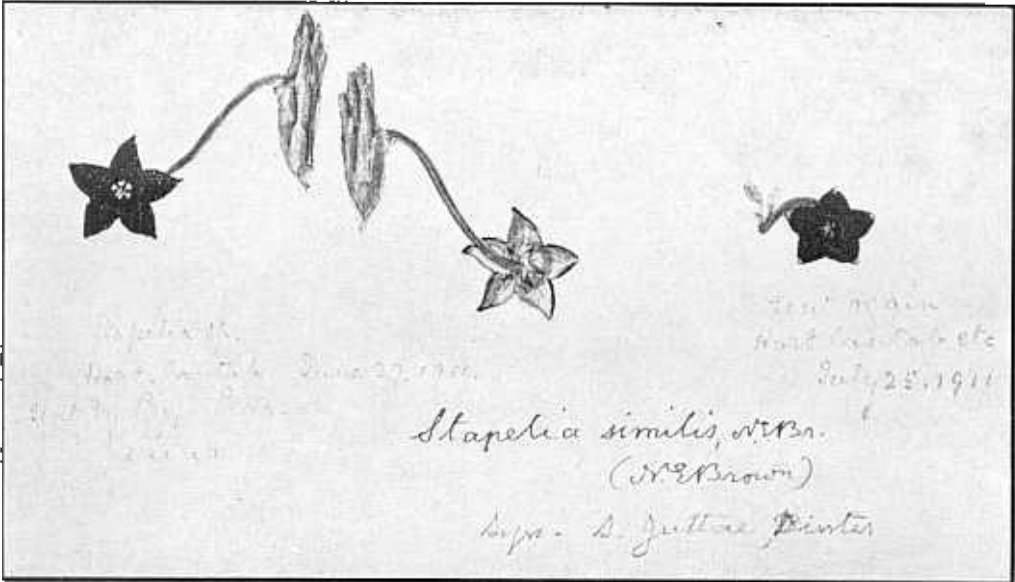


FIG. 398

Stapelia similis N. E. Brown x 0.8

Drawing by Miss Matilda Smith Reproduced by permission of the Director, Royal Botanic Gardens, Ke

17. *Stapelia kwebensis* N. E. Brown, *Flora Trop. Afr.*, iv. i. 501. 1904.

(Description by Dr. Brown, l.c.):

Plant: about 6 in. high, branching at the base; *stems* about $\frac{1}{2}$ in. thick, 4-angled, puberulous; angles shortly toothed; leaves $1\frac{1}{2}$ to $2\frac{1}{2}$ lin. long, $\frac{2}{3}$ lin. broad, subulate-lanceolate, acute, erect, puberulous;

Flowers: few, in subsessile cymes from near the base of the younger stems;

Bracts: $1\frac{1}{2}$ lin. long, lanceolate, acute, puberulous;

Pedice: 1 to $1\frac{1}{2}$ lin. long, shortly pubescent;

Sepals: $2\frac{1}{2}$ lin. long, $\frac{3}{4}$ to 1 lin. broad, lanceolate, acuminate, shortly pubescent;

Corolla: 1 to $1\frac{1}{3}$ in. in diameter, pubescent on the outside and on the apical half of the lobes within, "chocolate-colored" (*Capt. Lugard*), maroon to ochre (*Mrs. Lugard*); tube rather small, $1\frac{1}{2}$ lin. long and about 3 lin. in diameter; *limb* rotate, 5-lobed to $\frac{4}{5}$ the way down; *lobes* 5 to 7 lin. long, $3\frac{1}{2}$ to 5 lin. broad, ovate, acuminate, transversely rugose, glabrous on the basal half within;

Outer corona: lobes arising $\frac{1}{2}$ lin. above the base of the staminal column, $\frac{1}{3}$ lin. long, $\frac{3}{4}$ lin. broad, transversely oblong, very obtuse, entire;

Inner corona: lobes $\frac{1}{2}$ lin. long, oblong, acute, incumbent on the backs of the anthers.

Type locality: Bechuanaland Protectorate: Kalahari: Ngamiland: Kweb Hills.

Distribution: Also in Transvaal: Zoutpansberg Distr.: on road from Waterpoort to Zoutpan; Waterberg Distr.: Fourieskloof.

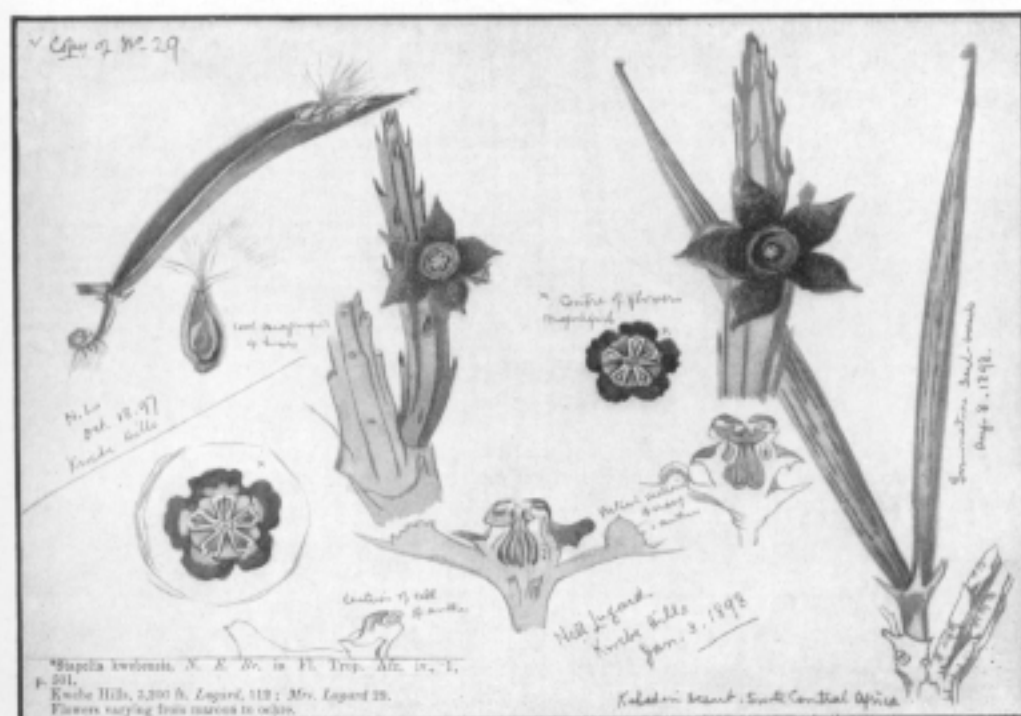


FIG. 399

Key to the colored plate of *Stapelia kwebensis*, Plate X.

A tropical species, discovered by Major (then Capt.) Lugard in Ngamiland, near Kwebe in the hills just south of Lake Ngami, in 1897. The stems are of distinctive appearance. They have rounded angles and are grooved between the angles, becoming nearly flat-sided with age. The very short teeth are tipped with erect rudimentary leaves. The flowers are dark chocolate-colored, sometimes chestnut, or even dark ochreous-yellow. The corolla is rugose throughout its inner face, the rugosities darker in color. The lobes have a short pubescence near their tips. The corona sets in a small circular tube, with an abrupt wall, the rim of which is, however, in no sense an annulus. The outer corona-lobes are broader than they are long, with a toothed or even edge, suggesting the outer corona-lobes found in some *Carallumas*, without being in any sense intergrown.

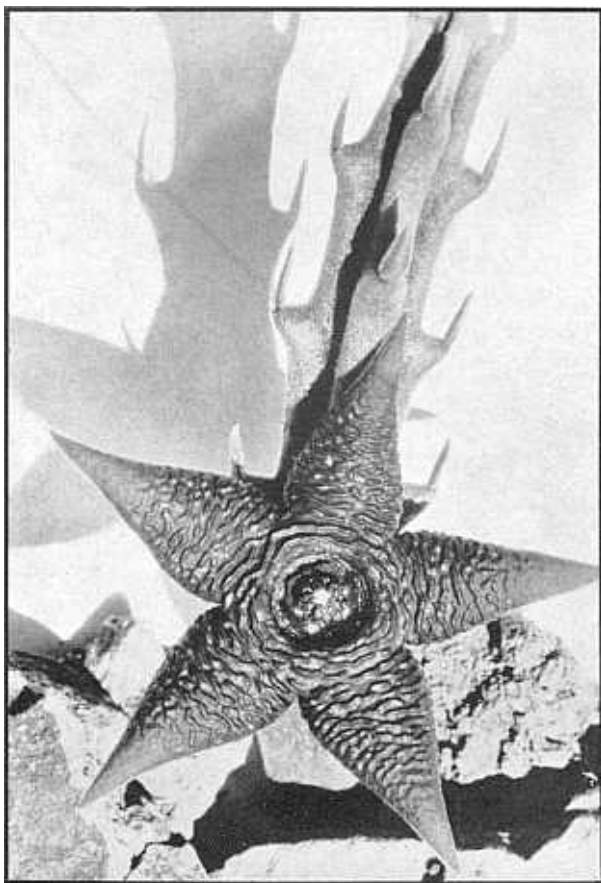


FIG. 400

Stapelia kwebensis N. E. Brown x 2.3

Photo by Herbert Lang.

Var. a. *Stapelia kwebensis* var. *longipedicellata* Berger, Stap. und Klein., 318. 1910.

Stapelia longipedicellata N. E. Brown, Kew Bull., 303. 1913.

(Description by Dr. Brown, l.c., translated from the Latin):

Stems: densely tufted, erect and not decumbent at the base; 10 to 15 cm. long, 1 to 1.5 cm. thick, 4-angled, minutely puberulous, green; angles toothed; rudimentary leaves erect, lanceolate-subulate, acute;

Flowers: 2 to 4, in cymes from the middle of the stems; cymes pedunculate; *peduncles* 8 to 12 mm. long, 6 mm. thick, minutely puberulous;

Pedicel: erect, 2.5 to 5 cm. long, 3 mm. thick, minutely puberulous;

Sepals: spreading, 6 to 7 mm. long, subulate-lanceolate;

Corolla: 3.8 to 4.3 cm. in diameter, deeply 5-lobed, outside minutely puberulous; *tube* small, about 3 mm. long, 6 mm. in diameter, glabrous, purplish; *lobes* spreading, 1.6 to 1.9 cm. long, 7 mm. broad, lanceolate when flattened out, acute, convex, with the margins very much recurved, transversely rugose within, glabrous at the base, the rest puberulous, blackish;

Outer corona: lobes very small and short, 0.5 mm. long, 1.5 mm. broad, truncate;



Inner corona: lobes linear, obtuse, incumbent on the anthers and scarcely exceeding them, dull purple.

Type locality: South West Africa: Ovamboland: near Olukonda.

Distribution: At numerous points in the northern, tropical half of South West Africa, and south to Keetmanshoop in Great Namaqualand.



FIG. 401

Stapelia kwebensis var. *longipedicellata*
Berger x 0.75

Photo by Prof. Dinter in Neue Pfl.
D. S.-W. Afr., 1914.

This "long-pediceled variety" of the "Kwebe Stapelia" was raised to specific rank by Dr. Brown in 1913, on the basis of many apparent differences, the long pedicels which lift the flowers gracefully above the stems, the lesser pubescence of the stems and the smaller rudimentary leaves, the less rugose corolla surface and its darker color, but especially because it grows 500 miles away from the habitat of *S. kwebensis* near Lake Ngami. It was first collected by Schinz in Ovamboland in

September, 1885, and later by Prof. Dinter and Dr. Marloth further south. The specimens we have seen revealed such variable gradations in color and other details that we felt the "Kwebe" and the "long-pedicel" could hardly be separate species. And in answer to an inquiry, Dr. Brown wrote us: "I am now myself doubtful whether the two species are distinct, especially as I understand there are other plants undoubtedly belonging to one and the same species that also occur in the same two areas." We have therefore restored the "long pedicel" as a variety.



FIG. 402

Stapelia kwebensis var. *longipedicellata*
Berger x 0.6

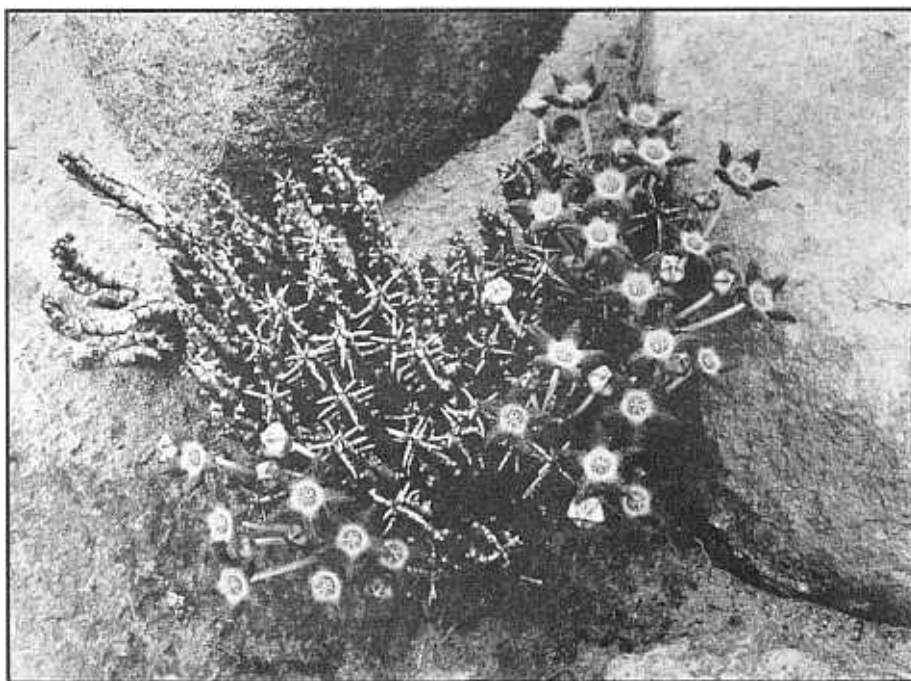


FIG. 403

Stapelia virescens N. E. Brown x 0.3

Photo by S. Tapscott.

18. *Stapelia virescens* N. E. Brown, Icon. Pl., t. 1910-B. 1890.*Stapelia aurea* Dinter, Succ. Forsch. Südw.-Afr., ii. 53. 1928.

(Description by Dr. Brown, Flora Cap., iv. i. 970) :

Stems: erect, $2\frac{1}{2}$ to $3\frac{3}{4}$ in. high, 5 to 6 lin. thick, obtusely 4-angled, tuberculate-toothed, with the teeth tipped with subulate very spreading deciduous or withering leaves 2 to 5 lin. long, glabrous, greyish-green, mottled with dull purplish-brown;

Flowers: below the middle of the stems; flowering axis or cyme ultimately elongating to $\frac{1}{2}$ to $\frac{3}{4}$ in. long, erect, stout, racemosely 6 to 9-flowered;

Pedicel: erect, $1\frac{1}{4}$ to 2 in. long, glabrous;

Sepals: $1\frac{1}{2}$ to 2 lin. long, lanceolate, acuminate, channeled down the inner face, glabrous, very sparsely ciliate with minute clavate hairs;

Corolla: 1 to $1\frac{1}{6}$ in. (much less in dried specimens) in diameter, very deeply 5-lobed, flat, without a distinct tube, smooth and whitish-green, tinted with purplish on the back, rugose with small densely crowded conical processes or stout papillae and greenish-yellow on the inner face; *lobes* about 5 lin. long and $3\frac{1}{2}$ to 4 lin. broad, ovate, acute, with reflexed margins, glabrous, not ciliate;

Outer corona: lobes variable, $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, usually trifold with the middle lobe entire or variably 3 to 5-toothed and much longer than the lateral subulate lobes or teeth, or sometimes somewhat lanceolate, acute, with a minute tooth on each side below the middle, channeled down the face, yellow;

Inner corona: lobes 2-horned, yellow; outer horn $\frac{2}{3}$ to 1 lin. long, compressed, narrowly deltoid or subulate, ascending-spreading, straight or slightly recurved; inner horn $1\frac{3}{4}$ lin. long, filiform, connivent at the base, then arching-recurved.

Type locality: Cape Prov.: Karroo, "on the road to the Diamond Fields."



PLATE XI.

Stapelia virescens N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1932.

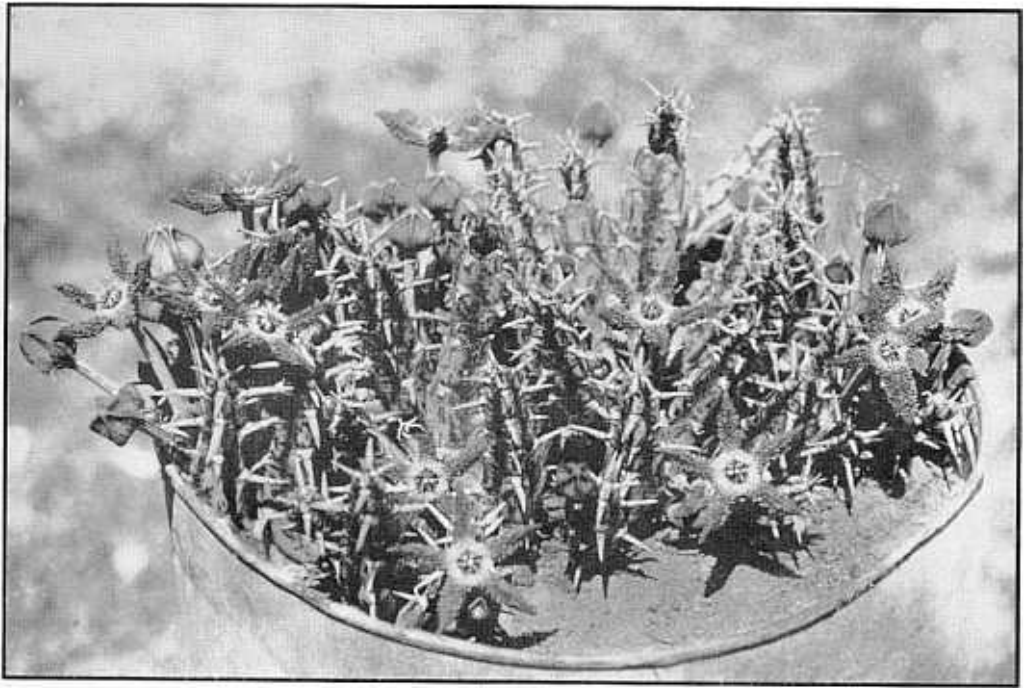


FIG. 404
Stapelia virescens N. E. Brown
 From the collection of David Pringle

Distribution: Recorded from Aberdeen Distr.: between Willowmore and Aberdeen; Philipstown Distr.: near Philipstown; Britstown Distr.: near Britstown; Hanover Distr.: Dwaal; Plaatjesfontein; Hopetown Distr.; Prieska Distr.: "not common;" South West Africa: Great Namaqualand: near Eendoorn.

The "greenish *Stapelia*" was brought to Sir Henry Barkly about 1875 by Mr. Dickson from the Karroo. The small greenish-yellow flowers, sometimes almost golden, are very charming. They open the select group of *Tridenteas*, so-called because the outer corona-lobes are deeply trifid, the middle tooth being the largest and in some cases itself partly cleft. The plants in this group have glabrous stems, the angles with short teeth but unusually long and persistent rudimentary leaves. Of *Stapelia virescens*, Dr. Marloth wrote in the Flora of South Africa: "It is remarkable as being one of the few stapelioid plants which bear leaves even in the adult stage. Although these awl-shaped organs appear to be

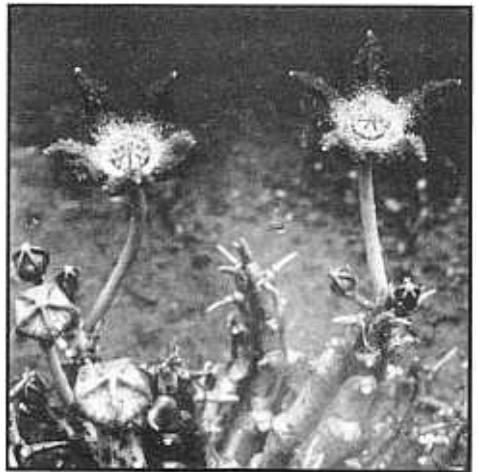


FIG. 405
Stapelia virescens N. E. Brown x 0.9
 Photo by S. Tapscott.

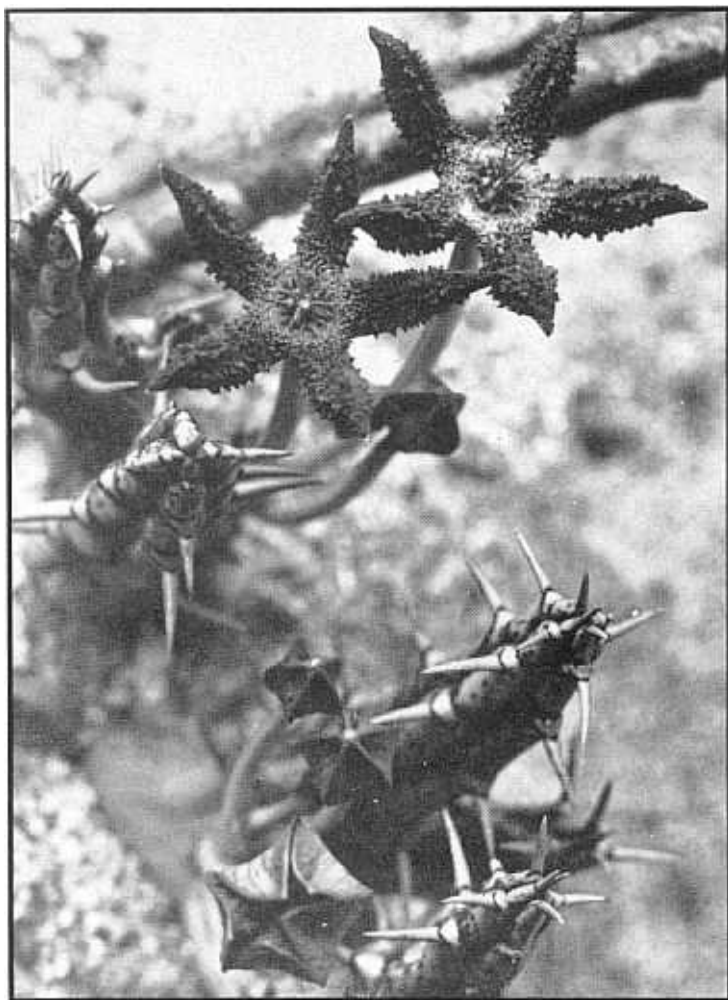


FIG. 406

Stapelia virescens N. E. Brown x 1.3

Photo by Carl Luckhoff.

merely projections of the cauline teeth, yet they are real leaves, their foliar nature being indicated by the joint at their base." *S. virescens* has the smallest flowers of any of the *Tridentaeas*. They are only about 1 inch in size, yellowish-green, quite hairless, but with densely crowded papilla-like processes on the corolla-disk and several radiating rows of stout papillae on the lobes. Sir Henry Barkly commented in very strong terms on the unpleasant odor of the flowers. At the suggestion of C. Luckhoff and Prof.

Dinter, we have referred to this species a plant collected by the latter on March 26, 1924, near Eendorn in Great Namaqualand, of whose discovery he wrote: "As we worked our way up from the lowland of the Eendorn River to the high plain, we found ourselves again in the low-bush country among many *Mesembryanthemums*. Suddenly from a considerable distance a loose cluster of golden-yellow stars caught my eye. It proved to be a *Stapelia* beneath a leafless *Rhigozum* bush. It was

a wonderful sight, for I had never seen a yellow-flowered *Stapelia* before. The flowers had a pedicel 5 to 6 cm. long, the corolla 20 to 23 mm. in diameter, with greenish-golden-yellow lobes, lanceolate, not ciliate, very much wrinkled on the upper side."

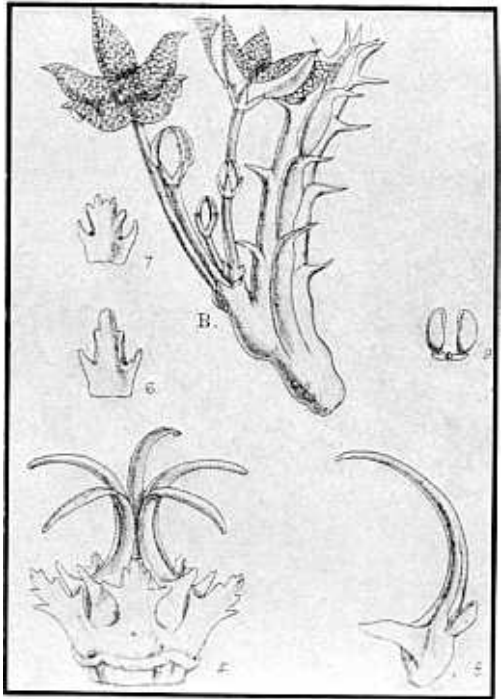


FIG. 407

Stapelia virescens N. E. Brown x 1.
From Hooker's *Icones Plantarum*, 1890.

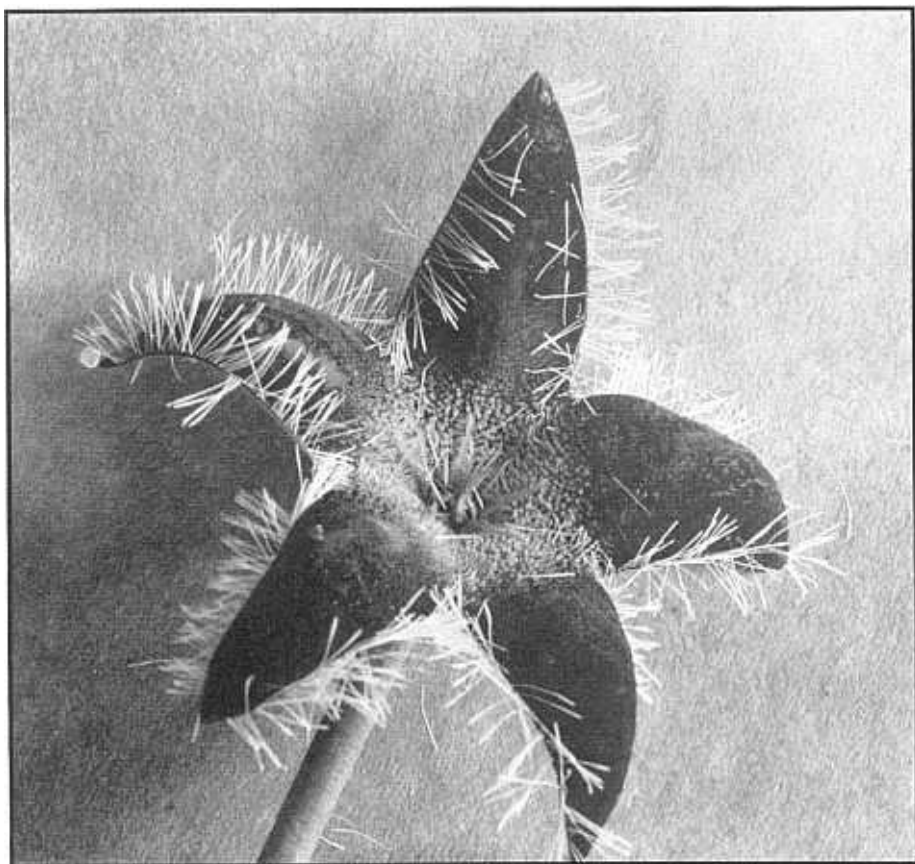


FIG. 408

Stapelia marientalensis Nel x 2.6

Photo by Carl Luckhoff.

19. *Stapelia marientalensis* Nel, Kakteenkunde, 118. 1935.

(Description by Prof. G. C. Nel, l.c., translated from the German):

Stems: 4-angled, tapering towards the apex, distinctly grooved, 5 to 7 cm. long, 8 mm. thick; angles prominent; teeth 4 mm. long;

Flower: solitary, arising near the middle of the stems;

*Pedice*l: 3.4 cm. long, almost terete, with hardly noticeable ridges, green, glabrous;

Sepals: deltoid-lanceolate, acuminate, 7 mm. long, 1 mm. broad at the widest point, with many fine transverse rugosities, rather dark green with small white dots;

Corolla: 4.5 cm. in diameter; yellow-green outside, with 6 dark green ridges from the base to the apex of the lobes, glabrous; inside light yellow around the central depression with many close-set yellowish-white papillae, shaped like inverted ninepins; at the sinuses the papillae are armed with stiff white hairs 1 mm. long; this yellow zone forms a ring about 4 mm. wide around the central depression and then passes gradually into a section which is still yellow, but divided into purple patches; nearer the apex the lobes are deep blackish-purple, velvet-like, with 3 black stripes towards the apex; lobes ciliate with very long clavate white hairs;

Outer corona: lobes 3-horned; middle horn 4 mm. long, triangular, elongate, with 2 small projections at the apex, yellowish above, spotted with purple below; lateral horns much more slender, almost terete, tapering very much above and ending in a sharp point, yellowish; all three horns almost erect or somewhat spreading;

Inner corona: lobes about as long as the outer corona-lobes, produced above the anthers, yellow with many nearly round spots, with an outwardly curved horn.

Type locality: South West Africa: Haruchas, near Mariental.

Distribution: Not further known.

FIG. 409

Stapelia marientalensis Nel x 0.7

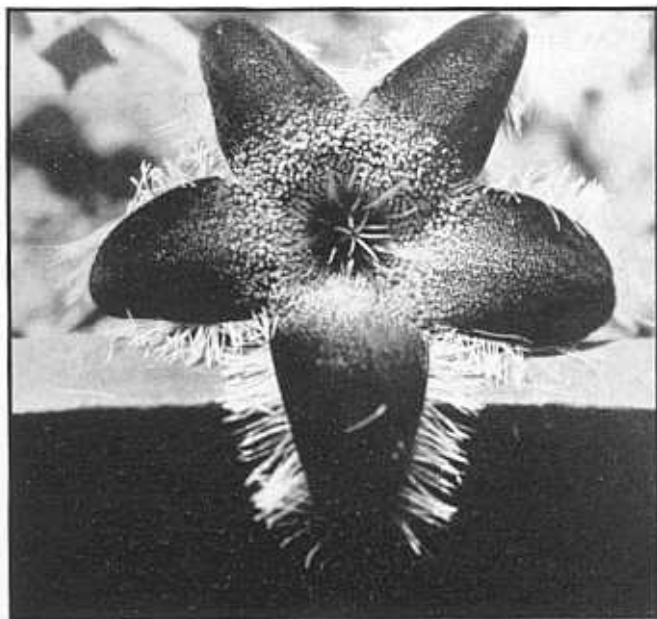
Photo by H. Herre
Kakteenkunde, 1935.



FIG. 410

Stapelia marientalensis Nel x 2.

Photo by H. Herre



The "Mariental Stapelia" is one of the most striking species in the genus. Its two-inch flowers, with the upper part of the lobes velvety black-purple and the centre yellow changing gradually to purple, are heavily papillate at the centre with yellow-white papillae, while the lobes are ciliate with very long clavate white hairs. The corona is unique, the outer corona-lobes divided into three erect or somewhat spreading horns and the inner corona-lobes with a graceful outwardly curved horn. The species was discovered by Siegfried Berger in July, 1933.

20. *Stapelia auobensis* Nel, sp. nov.

(Description by Dr. G. C. Nel) :

Caulis carnosus, tetragoni, glabri, ad basin subrotundi; costae haud prominentes, ad apicem aculeis subulatis mollioribus viridibus munitae. Flores 5-6-fasciculati. Sepala lanceolata, acuminata. Petala 2.2 cm. longa, 1.3 cm. lata, extus roseo-virida, 5-6-costata, ovato-linearia, acuta, purpureo-ciliata, intus ad apicem atro-purpurea, ad basin leviter luteo-purpurea, leviter rugosa, papillis luteis purpureo-maculatis munita. Corollae exterioris segmenta lutea, purpureo-maculata, tricornuta, cornua exteriora filiformia, cornu medium ad basin replicatum, ad apicem bidenticulatum, lineare. Corollae interioris segmenta filiformia ad basin purpureo-maculosa.

Stems: 8 to 11 cm. high, 1 cm. thick, grey-green mottled with purple spots, 4-angled; angles somewhat rounded towards the base of the stems and not very prominent, more pronounced towards the apex, with soft green subulate spike-like teeth 10 to 12 mm. long, swollen at the base;

Flowers: in fascicles of 5 to 6 on lateral branches;

Pedice: 3.5 to 5 cm. long, round, glabrous;

Sepals: lanceolate, acuminate;

Corolla: in bud very nearly globose; when expanded 5 cm. in diameter, with ovate-linear acute lobes, 1.3 cm. broad, ciliate with light violet-purple vibratile hairs; outside glabrous, reddish-green, 5 to 6-ribbed; inner surface black-purple, with a circular yellowish zone, tinged with purple, 4 to 6 mm. broad, around the corona, this zone consisting of yellowish papillae each tipped with a purplish spot, giving this part of the corolla surface the appearance of being rugose;

Outer corona: lobes consisting of 3 horns in the same plane, the two lateral horns filiform, produced to a fine point, the middle horn 3 to 4 mm. long, linear, slightly replicate at the base and filiform towards the apex, apex obtuse, bidenticulate, upper surface of horn with purple spots on a yellowish background;

Inner corona: lobes produced above the anthers, filiform, towards the base with purple spots on a yellowish background, armed with an anterior denticulate horn.

Type locality: South West Africa: Great Namaqualand: on the banks of the Auob River in loamy soil under bushes.

Distribution: Not further known.

FIG. 411

Stapelia auobensis Nel x 0.5

Photo by W. Triebner.



This very handsome "Auob Stapelia" was discovered by W. Triebner on August 25, 1935, and flowered in his garden at Windhoek on November 17, 1935. (No. 2106). The species derives its name from that of the Auob River in the far easterly section of Great Namaqualand, on the banks of which it was collected. The Auob, sometimes called the Oup, is one of the two principal tributaries of the Molopo, once a mighty river draining the greater part of the Kalahari. In recent times all these rivers have become more and more completely dry, with their channels often

invaded by sand dunes. But after the heavy rainfall early in 1934, the Auob reawoke from its slumbers and for a time flowed in considerable volume again, and its waters helped to restore Lake Abiquaputs further south to some echo of its former size.

Dr. Nel comments on *S. auobensis* as follows: "This species is closely allied to

S. marientalensis, but it differs from the latter in the quite different color of the corolla surface. Also *S. marientalensis* has beautiful white cilia, whereas the ciliation of *S. auobensis* is purplish. Both species were flowering at the same time, and the differences were quite apparent."

21 *Stapelia furcata* N. E. Brown, Flora Cap., iv. i. 973. 1909.

(Description by Dr. Brown, l.c.)

Stems: unknown;*Pedice*l: $\frac{3}{4}$ to 1 in. long, stout, glabrous;*Sepals*: 3 to 4 lin. long, ovate-lanceolate, acuminate, glabrous;*Corolla*: of dried flowers $1\frac{1}{3}$ to $1\frac{1}{2}$ in. in diameter, with a small cup-like cavity containing the corona and the united part apparently broadly and shortly funnel-shaped; *lobes* ovate, acute, 4 to 6 lin. long and 3 to 5 lin. broad, probably larger when alive, smooth and glabrous on the back, rugose and covered with rather stiff very acute and somewhat spine-like erect hairs $\frac{1}{3}$ to $\frac{1}{2}$ lin. long on the inner face, ciliate on the lobes with long vibratile clavate purple hairs, apparently dark purple-brown, with the hairs probably purple;*Outer corona*: lobes shortly connate at the base, spreading or ascending-spreading, about $1\frac{1}{4}$ lin. long and as much in breadth, 3-toothed, with the lateral teeth widely spreading and smaller than the middle tooth;*Inner corona*: lobes $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, closely incumbent upon the backs of the anthers and shortly exceeding them, linear, deeply bifid at the apex, with one tooth directed forward and the other to one side of it, dorsally connected with the outer corona at the base and there deeply notched or produced into 2 short teeth between the outer corona-lobes.

Type locality: Transvaal: without precise locality.

Distribution: Not further known.

The "forked *Stapelia*" was discovered by Todd in the westerly part of the Transvaal about 1900. It is an imperfectly known species (the stems entirely unknown) and Dr. Brown has said of it: "This very remarkable species is evidently allied to *S. woodii*, but at the same time resembles *Caralluma intermedia* in its coronal structure. The short spine-like hairs on the corolla distinguish it from every other known species."

While these pages were in the printer's hands, Miss Obermeijer has written us that

she believes *Stapelia furcata* is actually a form of *Caralluma melanantha*. This is a brilliant diagnosis, which Dr. Schweickerdt corroborates as "most probable," after examining the corona of *C. melanantha* at the Kew Herbarium. "The latter species," says Miss Obermeijer, "is very common and, Oh, so variable! It has led many a good botanist astray. Sometimes the dorsal knob of the inner corona-lobes is quite distinctly produced, giving it the appearance of being bifurcate."

Stapelia pachyrrhiza

22. *Stapelia pachyrrhiza* Dinter, Fedde: Repertorium, xix. 154. 1923.

(Description by Prof. K. Dinter, l.c., translated from the German) :

Stems: in tufts of 5 to 25, obtusely 4-angled, 4 to 7 cm. high, 1.5 cm. thick, grey-green, spotted with red, and more or less reddish at the apex; leaves 2.5 to 3 mm. long, acute;

Flowers: several together from the base of the young stems;

Pedicel: 2 to 2.5 cm. long, 5 to 6 mm. thick;

Sepals: ovate-lanceolate, acute, 6 to 8 mm. long, 3 mm. broad;

Corolla: in bud 2.5 cm. high, 3.5 cm. broad, flat above, with the base of the corolla-lobes folded into projecting knuckles; when expanded 7 to 7.5 cm. in diameter; outside brown-red with 7 somewhat raised veins on each lobe; inside with red tiger-like markings on a yellow ground or uniformly velvet-black; the united part very flatly funnel-shaped, with just the corona sunken down; lobes 2 to 2.1 cm. long, 2.3 to 2.5 cm. broad at the base, recurved at the apex, ciliate with a dense fringe of red clavate hairs, 3 mm. long;

Outer corona: lobes 4 mm. long, 3-toothed; the middle tooth bent into a groove towards the tip, lance-shaped, with 2 broad toothlets; the lateral teeth smaller, acute, narrow, and also apparently cleft at the tip;

Inner corona: lobes consisting of a narrowly sickle-shaped or subulate inner horn, with an erect blunt broad outer horn, 2 mm. long, growing out dorsally at its base and itself equipped at its back edge with 2 small teeth or notches.

Type locality: South West Africa: Great Namaqualand: without precise locality.

Distribution: Great Namaqualand: Buchberge.

Discovered by Prof. Dinter in Great Namaqualand in 1922, growing on the plateau region in red sand over the chalk formation among low bushes of Composites and Mesembryanthemums. The name, the "thick-rooted *Stapelia*," indicates the characteristic feature exhibited by this species below ground; while above ground it is differentiated through its habit of growing in full sunshine and avoiding the sheltering shadow of bushes, which other *Stapeliads* usually seem to seek out. The plant is typically a *Tridentea*, from the 2 to 3 inch stems with their sharp leaves to the pattern of the outer corona-lobes, and it very closely approaches *S. gemmiflora* and its var. *hircosa*. The flowers are about 3 inches in diameter, reddish on a yellow ground, or uniformly dull purple-black. The lobes are fringed with red clavate hairs.

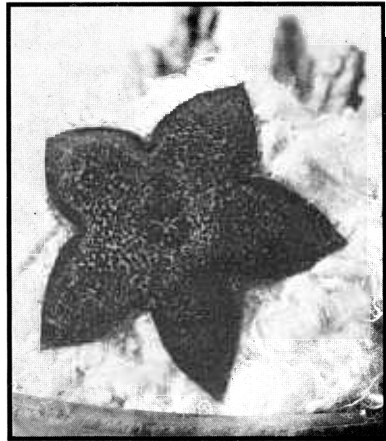


FIG. 412

Stapelia pachyrrhiza Dinter x

From W. I. Beecroft Gardens.

Photo by Havens.

23. *Stapelia umbonata* Pillans, So. Afr. Gard., xviii. 62. (Special reprint.) 1928.

(Description by N. S. Pillans, l.c., translated from the Latin):

Stems: dense, ascending, 4 to 6 cm. high, 1 to 1.3 cm. in diameter, square, concave between the angles, glabrous, glaucous-green dully marked with purple; angles obtuse, with knob-like teeth, ending in rudimentary leaves 2 mm. long;

Flowers: several together in a fascicle near the base of the young stems;

Pedicel: ascending, glabrous, quite thick, about 2 cm. long;

Sepals: 5 to 6 mm. long, ovate, acute, glabrous;

Corolla: when expanded $6\frac{1}{2}$ to 7 cm. in diameter, convex on the disk and lobes; outside glabrous, tinged with purple; inside glabrous, rugose, the lobes with about 9 rather indistinct grooves on the upper part, greenish-yellow densely spotted in deep purple except along the margins of the lobes; *lobes* recurved, deltoid-ovate, acute, 2 to 2.3 cm. long, with the edges erect-curved and ciliate with conspicuous vibratile intermixed with very short simple purple hairs;

Outer corona: lobes spreading, deep purple, $4\frac{1}{2}$ to 5 mm. long, 3-toothed from a subquadrate base, the middle tooth about $2\frac{1}{2}$ mm. long, lanceolate, acute, entire or serrulate on the edges, slightly channeled on the inner face, with the edges at the base very much incurved, the lateral teeth arising about half-way up the lobes and nearly parallel with it, $\frac{3}{4}$ to 1 mm. long, deltoid-lanceolate, acute or obtuse, with the edges entire or obscurely toothed;

Inner corona: lobes about 5 mm. long, deep purple, formed of an inner horn with a dorsal wing at the base, the inner horn incurved at the base, connivent above, then recurved, subulate, obtuse, the dorsal wing erect-spreading, about $1\frac{1}{2}$ mm. long, narrowly deltoid, very much compressed, towards the apex frequently obtusely cut into or toothed.

Type locality: Cape Prov.: Little Namaqualand: Richtersveld.

Distribution: Not further known.

The "knobby-stemmed *Stapelia*" (*umbo* in Latin means an elbow) derives its name from the obtuse, knob-like projections or teeth along the angles of the densely tufted stems.

It was discovered by Mr. Pillans in the

northernmost section of Little Namaqualand in 1926. It is related to *S. gemmiflora*, but has shorter thicker stems and a modified corona form, with the lateral teeth of the outer corona-lobes smaller and the inner horn of the inner corona terete.

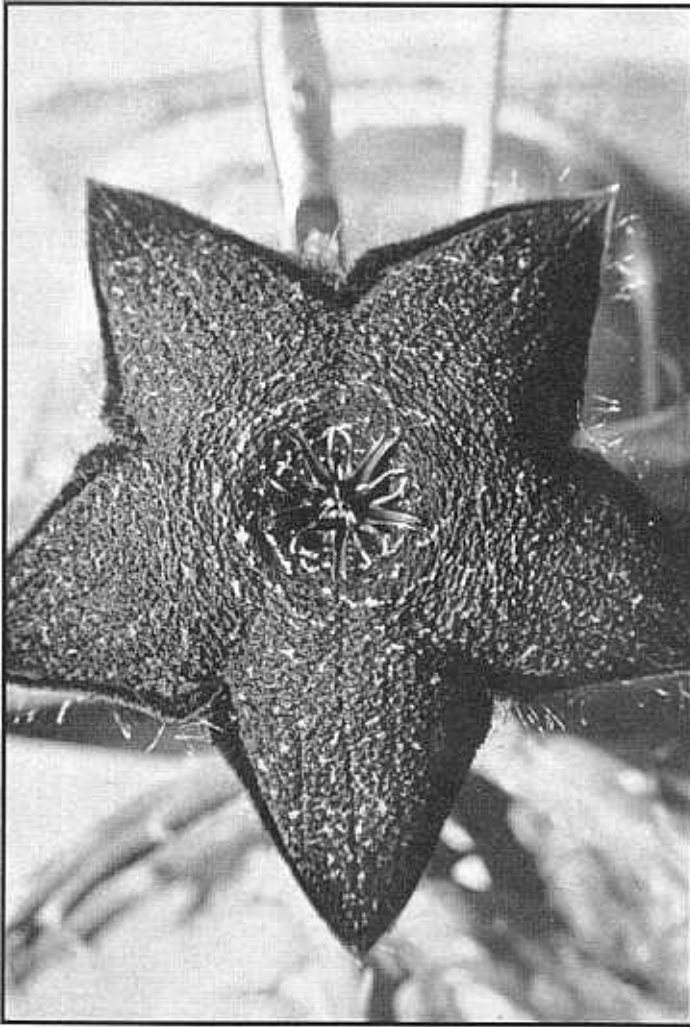


FIG. 413

Stapelia gemmiflora Masson x

24. *Stapelia gemmiflora* Masson, Stap. Nov., 14. 1796.

Tridentea gemmiflora Haworth, Syn. Pl. Succ., 34. 1812.

Tridentea stygia Haworth, Syn. Pl. Succ., 35. 1812.

Stapelia stygia Schultes, Syst. Veg., vi. 32. 1820.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 961):

Stems: 3 to 4 in. high, obtusely 4-angled, $\frac{1}{2}$ to $\frac{2}{3}$ in. square, rather softly fleshy, glabrous, greyish- or subglaucous-green; teeth ending in spreading subulate acute leaves 2 to 4 lin. long;

Flowers: 1 to 4 together, successively developed, near the base of the young stems;

Pedicel: erect or spreading, $1\frac{1}{4}$ to 2 in. long, about 2 lin. thick, becoming 4 to 5 lin. thick in fruit, glabrous;

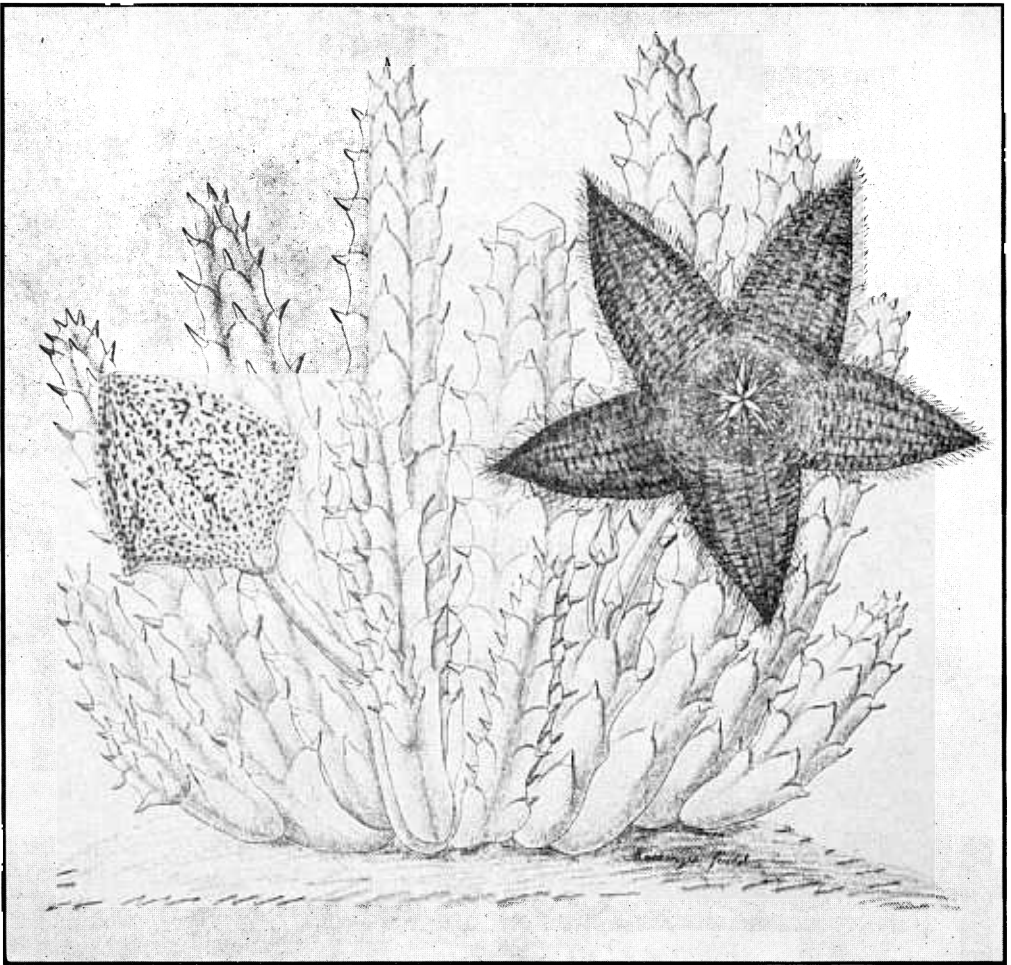
Sepals: $2\frac{1}{2}$ to 3 lin. long, ovate-lanceolate, acute or acuminate, glabrous;

Corolla: in bud rhomboid-ovoid in side view, pentagonal, with 5 short acute spreading or decurved points at the angles; when expanded $2\frac{1}{2}$ to $3\frac{1}{2}$ in. in diameter, flattish on the disk, with

spreading or recurving lobes, glabrous on both sides, smooth and thickly covered with brownish-red spots (always?) on a pale green ground on the back, inner face densely and minutely rugose, intense violet- or blackish- purple, minutely and indistinctly mottled with a slightly lighter shade of the same color and lighter along the margins, with or without a few yellow spots at the base of the lobes and on the disk; lobes 1 to $1\frac{1}{4}$ in. long, 9 to 10 lin. broad, ovate or oblong-ovate, acute, flat or slightly convex, beautifully ciliate from base to apex with vibratile slightly clavate white or pale purple hairs;

r corona: lobes erectly spreading, $3\frac{1}{2}$ to 4 lin. long, deeply trifid, blackish-purple with the tips of the teeth and margins of the middle tooth below the middle ochreous; middle tooth lanceolate or linear-lanceolate, varying from entire and acute, obtuse or truncate, to bifid at the apex, channeled down the face and the sides, pinched in at the base; lateral teeth shorter, subulate or filiform;

r corona: lobes 2-horned, blackish-purple, with the tips of the inner horn and a few dots at the base of both horns yellow; inner horn connivent-erect at the base, recurving above, 2 to $2\frac{3}{4}$ lin. long, filiform, acute or obtuse; outer horn ascending, $\frac{3}{4}$ to 1 lin. long, compressed, linear- or narrowly deltoid-subulate;



iflora Mas: x 0.9
Ma: Stapeliae No 1706

Follicles: erect, subparallel, 4 to 5 in. long, $\frac{1}{2}$ to $\frac{2}{3}$ in. thick, fusiform, beaked, glabrous, pale greenish, with numerous irregular blackish-green longitudinal linear markings; *seeds* $\frac{1}{4}$ in. long, $\frac{1}{8}$ in. broad, elongate-ovate, flat, with a wing-like margin, smooth, light brown.

Type locality: Cape Prov.: "in dry places among bushes beyond Platte Kloof."

Distribution: Widely distributed in the Cape Prov.: including Swellendam; Laingsburg; Riversdale; Willowmore; Uniondale; Ladismith; Prince Albert; Steynsburg; Graaff Reinet; Middelburg; Albert; De Aar; and Aliwal North districts; also in Orange Free State: Fauresmith district; and probably in South West Africa.

The "gem-flowered *Stapelia*" is found in a wide range from Swellendam to the Orange Free State, and there are two recognized varieties and doubtless other minor forms. The flowers are always characterized by a powerful odor, though opinions may vary as to its virtue. Prof. MacOwan called the smell of the type "horribly fetid," whereas Mr. Pillans has referred to it as "musky, very agreeable." The pungent name of the var. *hircosa*, the "variety which smells like a goat," was derived from a remark by Sir Henry Barkly anent its singularly musky aroma. The species is one of the *Stapelias* locally known by the Afrikaans name, *Aasblom*, or carrion-flower, a name applied to several other malodorous species, including *S. asterias*.

S. gemmiflora is an interesting plant, the stems somewhat similar to those of *S. virescens*, 3 to 4 inches high, the teeth ending in acute spreading leaves. The flowers

are about $2\frac{1}{2}$ to $3\frac{1}{2}$ inches in diameter, the inner face of the corolla violet-purple, mottled with spots of the same color or a few yellowish markings. The lobes are beautifully fringed with vibratile slightly clavate hairs. The corona is typical of the *Tridentea* section, the lobes of the outer corona 3-toothed, with the lateral teeth shorter than the middle one.

The plant is a free bloomer, and when in full bloom is a memorable sight. Miss Verdoorn tells of seeing such a specimen at the Grootfontein School of Agriculture in Middelburg district, C. P.: "Under a *Pteronia* bush on the grazing plots at the School there was a large patch of *S. gemmiflora* flowering profusely. How well hidden such plants are until you have actually seen them, and then you wonder at their profusion of flowers and obviousness!"

Var. a. *Stapelia gemmiflora* var. *hircosa* (Jacquin) N. E. Brown, *Flora Cap.*, iv. i. 962. 1909.

Stapelia moschata J. Donn, *Hort. Cantab.*, 3 Ed., 43. 1804. (*Nomen nudum*).

Stapelia hircosa Jacquin, *Stap.*, t. 25. 1806-19.

Tridentea moschata Haworth, *Syn. Pl. Succ.*, 35. 1812.

Stapelia hircola Poiret, *Encycl. Method., Suppl.*, v. 234. 1817.

Tridentea hircosa Schultes, *Syst. Veg.*, vi. 850. 1820.

(Description by Dr. Brown, l.c.):

Corolla: bud with spreading points at the sinal angles; when expanded inner face with some yellowish dots and irregular markings on the dark purple-brown or blackish-purple ground color or covered with large dark purple-brown spots on a greenish-yellow ground;

Otherwise as in the type.

Type locality: Cape Prov.: without precise locality.

Distribution: Swellendam, Riversdale, Ladismith and Laingsburg districts.

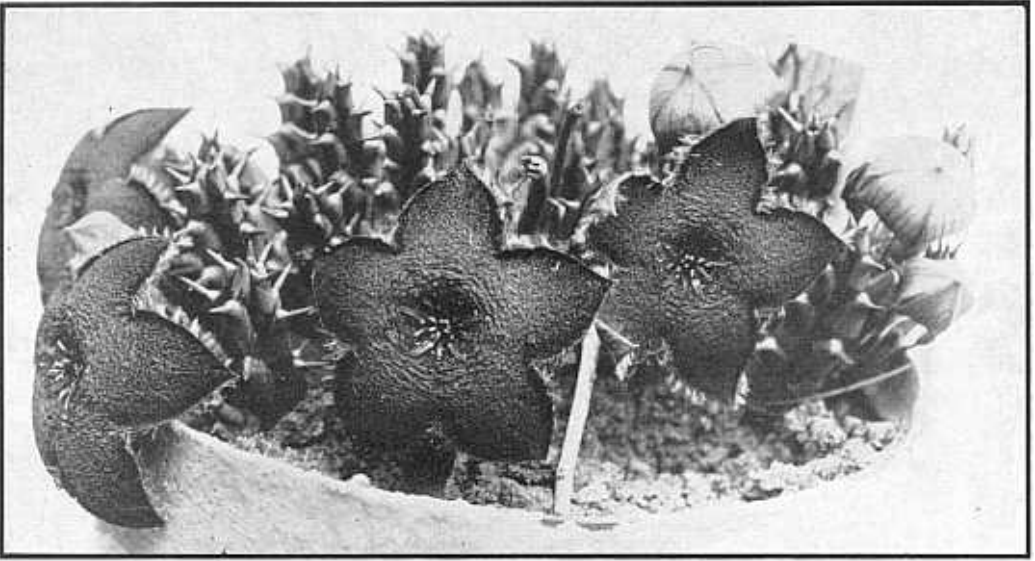


FIG. 415

Stapelia gemmiflora Masson x 0.75
From the collection of David Pringle.

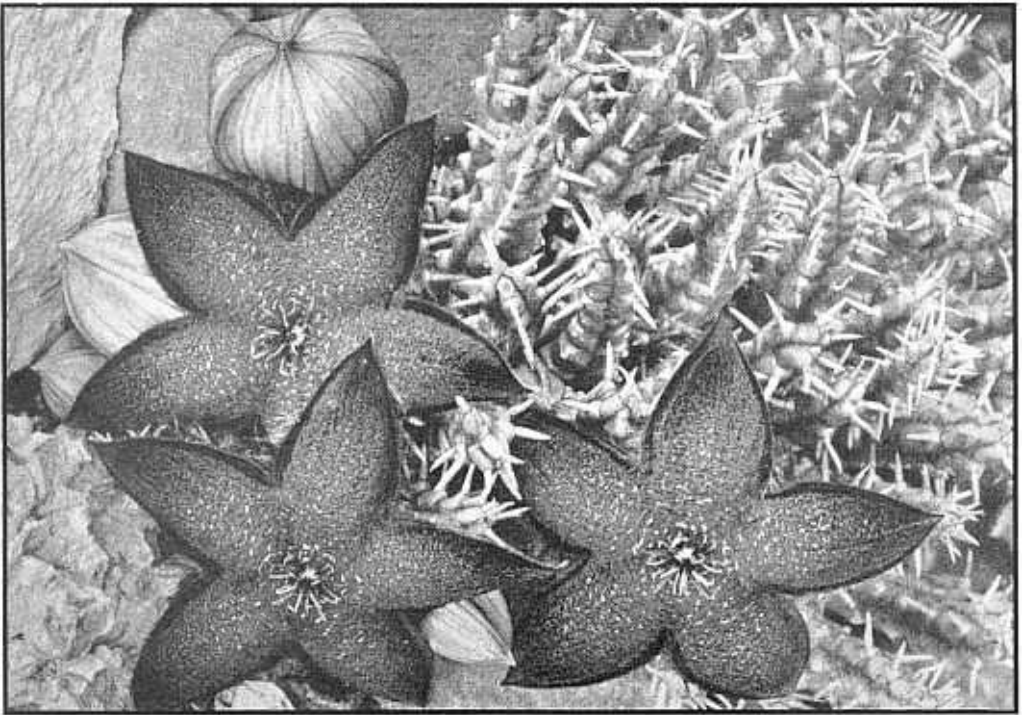


FIG. 416

Stapelia gemmiflora var. *densa* N. E. Brown x 1.
Photo by Herbert Lang, from the South African Pictorial Calendar, 1935.

Var. b. *Stapelia gemmiflora* var. *densa* (N. E. Brown) N. E. Brown, Flora Cap., iv. i. 963. 1909.

Stapelia hircosa var. *densa* N. E. Brown, Icon. Pl., sub t. 1910. 1890.

(Description by Dr. Brown, Flora Cap., l.c.):

Corolla: bud with short upcurved points at the sinal angles; when expanded inner face greenish-yellow densely speckled (except along the margins) with dark purple-brown;

Outer corona: lobes light ochreous-yellow, sparingly dotted with purple-brown and a line of it down the inner face of the bifid or entire and acute or obtuse middle tooth;

Inner corona: lobes light ochreous-yellow, sparingly dotted with purple-brown;

Otherwise as in the type.

Type locality: Cape Prov.: near the Orange River and between Murraysburg and Richmond.

Distribution: Also in Beaufort West; and Prince Albert districts.

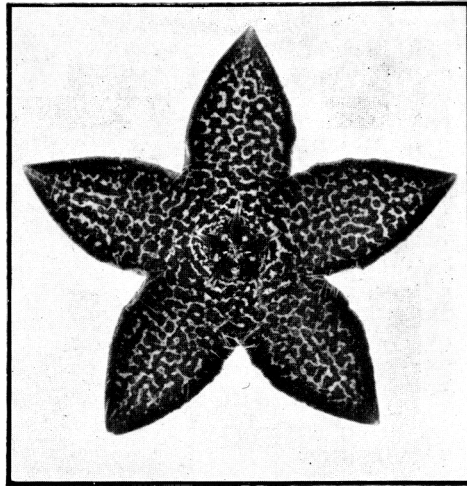


FIG. 417

Stapelia gemmiflora var. *hircosa* N. E. Brown
x 0.75

Photo: G. W. Reynolds, Johannesburg.

25. *Stapelia rufa* Masson, Stap. Nov., 16. 1796.*Stapelia rufescens* Salm-Dyck, Hort. Dyck., 373. 1834.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 965) :

Stems: erect, not decumbent at the base, 4 to 9 in. high, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, with obtuse angles and nearly flat sides when mature, and the teeth with erect rudimentary leaves $\frac{3}{4}$ to 1 lin. long, softly and minutely puberulous, at first green, becoming olive-green or tinted with dull purple with age;

Flowers: 3 to 5 together at the base or near the middle of the young stems, successively developed;

Pedicel: $1\frac{1}{2}$ to 4 lin. long, stout, velvety;

Sepals: 2 to $2\frac{1}{2}$ lin. long, tapering from the base to an acute apex, velvety;

Corolla: in bud ovate, acuminate; when expanded $1\frac{1}{4}$ to 2 in. in diameter, velvety-puberulous on the back, inner surface closely transversely rugose all over, with the shallowly and broadly funnel-like depressed disk and base of the lobes glabrous, their terminal part being pubescent or puberulous and minutely ciliate with purple hairs all along or sometimes with hairs $\frac{1}{2}$ to 1 lin. long at the basal part, entirely dull dark red or chocolate-red, or with slender dull olive-green lines between the transverse ridges on the disk and basal half of the lobes, which are 7 to 8 lin. long, $3\frac{1}{2}$ to 4 lin. broad, attenuate-acuminate from about the middle to the rather slender tips from an ovate base, very spreading or recurving, with recurved margins;

Outer corona: lobes spreading, $\frac{1}{2}$ to $\frac{3}{4}$ lin. long, $\frac{1}{2}$ to $\frac{3}{4}$ lin. broad, subquadrate or transversely subrectangular, subtruncate, obscurely crenulate or with a very short obtuse-angled point at the apex, channeled down the face, very dark orange or reddish-orange (in dried flowers apparently yellow-ochre), microscopically ciliate (always?) ;

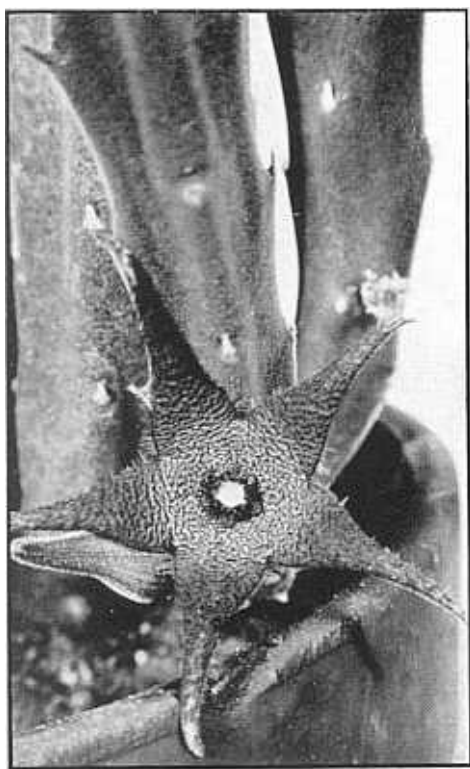


FIG. 418

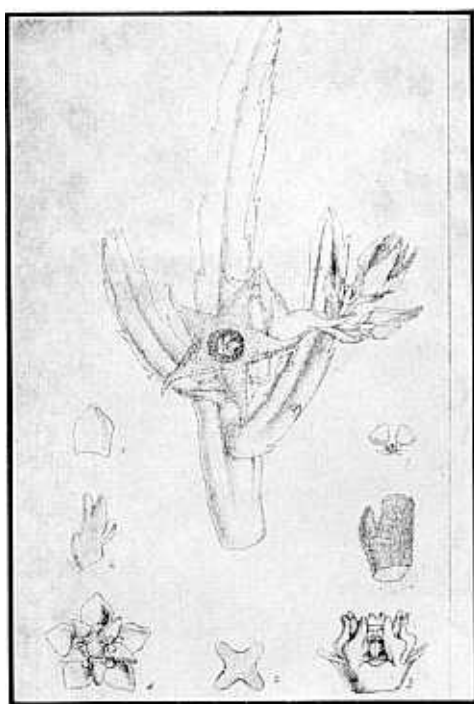
Stapelia rufa Masson x 1.5

FIG. 419

Stapelia rufa Masson x 0.5

From Hooker's Icones Plantarum, 1890.

Inner corona: lobes erect, $\frac{3}{4}$ lin. long, narrowly oblong or subcuneate-oblong, viewed from the back, subtruncate or obtuse to shortly bifid at the apex, with a short compressed projection or gibbosity at the base on the back, minutely puberulous, nearly black, shining;

Anthers: yellow.

Type locality: Cape Prov.: Riversdale Distr.: beyond Platte Kloof.

Distribution: Also in Riversdale Distr.: Little Karroo, north of Garcia's Pass; near Waterval; Laingsburg Distr.: near Matjesfontein; Prince Albert Distr.: Karroo, near Grootfontein; Ladismith Distr.: without locality; Barrydale Distr.: Warmwaterberg.

The "red *Stapelia*," first collected by Masson "beyond Platte Kloof" about 1793, is not to be confused with *S. rufa* Haworth (Syn. Pl. Succ., 20. 1812), a name given by Haworth to a form of *S. hirsuta* var. *patula* and to a seedling variety of *S. ambigua*. In 1833, the year of his death, Haworth recognized his error and wrote in pencil on the type sheet in his Herbarium: "Mem. 1833, this is I now think not *Stapelia rufa* Masson, nor do I find it elsewhere described. H." Haworth's name has persisted over a century popularly attached to indeterminate poor relations of *S. hirsuta*. Hence anyone believing he possesses

a specimen of *S. rufa* should study the inner corona carefully. In Masson's plant, the inner corona-lobes are broad and truncate, cleft one-third of the way down into two divergent points, or sometimes merely subtruncate or obtuse, with a short dorsal gibbosity near the base. This "cleft beak" identifies the section *Fissirostres*, established by Dr. N. E. Brown in 1890. The stems of the true *S. rufa* are velvety, the flowers transversely rugose, with a shallow depression at the centre of the corolla and pointed lobes, minutely ciliate, glabrous at the base, but with pubescent tips, a very unusual combination.

Var. a. *Stapelia rufa* var. *fissirostris* (Jacquin), comb. nov.

Stapelia fissirostris Jacquin, Stap., t. 23. 1806-19.

(Description by A. White and B. L. Sloane):

Corolla: lobes greenish-yellow on inner face, banded with dark red. Otherwise as in the type.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Ladismith Distr.: 10 miles south of Ladismith.

Sent to the Imperial Garden at Schönbrunn early in the 19th century by Georg Scholl. Until 1932 this Jacquinian plant was regarded as a distinct species from Masson's *Stapelia rufa*. In the Flowering Plants of South Africa in that year Dr. E. P. Phillips suggested that the two plants of Masson and Jacquin, both from the Karroid areas around Ladismith, were color forms

of a single species, Masson's being dark red sometimes with olive-green (or simply lighter colored?) lines, Jacquin's yellow-green with only the transverse rugosities purple-brown or dark red. We believe this color distinction sufficiently marked to justify Jacquin's plant having varietal rank, as in the case of the var. *paniculata* of *S. concinna*.

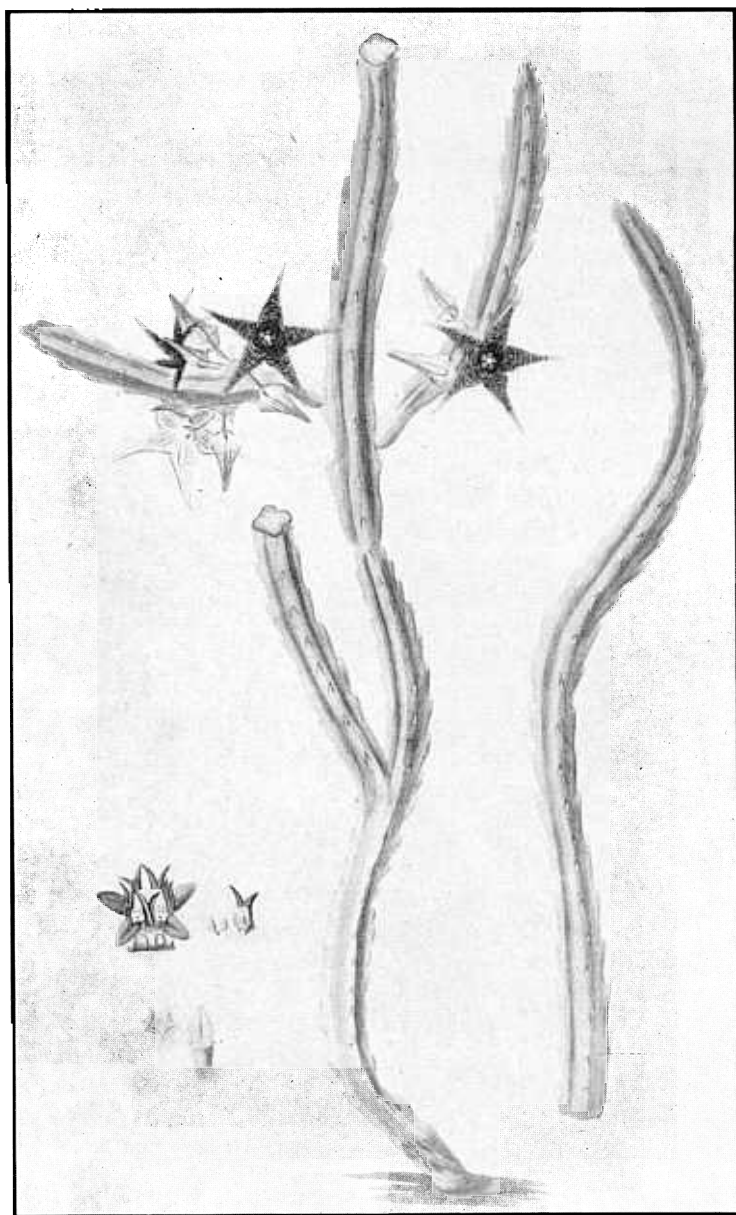


FIG. 420

Stapelia rufa var. *fissirostris*, comb. nov. x 0.5

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

Var. b. *Stapelia rufa* var. *attenuata* N. E. Brown, *Flora Cap.*, iv. i. 966. 1909.

Stapelia fissirostris N. E. Brown, *Icon. Pl.*, sub. t. 1922. 1890. *Nec* Jacquin, 1806-19.

(Description by Dr. Brown, *Flora Cap.*, l.c.):

Corolla: lobes 9 to 10 lin. long, 3 lin. broad at the deltoid or deltoid-ovate base, at about $\frac{1}{3}$ of the way up rapidly tapering into the narrow linear-attenuate tail-like tips, rather minutely ciliate;

Outer corona: lobes subrectangular, obtuse or with a broad obtuse-angled point, not ciliate;

Inner corona: lobes suberect, 1 lin. long, linear, very obtuse or slightly bifid, quite glabrous, blackish or very dark purple-brown;

Otherwise as in the type.

Type locality: Cape Prov.: Ladismith Distr: Touws Berg.

Distribution: Also at other points in Ladismith Distr., and in Laingsburg and Riversdale districts.

The discovery of this "attenuate variety" is attributed to Thomas C. Bain, about 1875. It is characterized by the minutely ciliate corolla-lobes, which taper to narrow linear-attenuate tail-like tips.

26. *Stapelia deflexa* Jacquin, Stap., t. 20. 1806-19.*Stapelia reflexa* Haworth, Syn. Pl. Succ., 18. 1812.*Stapelia brevirostris* Willdenow, Enum. Pl. Hort. Berol., Suppl., 14. 1813.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 955):

Plant: laxly branching, with erect *stems*, decumbent at the base, 4 to 7 in. long, 5 to 7 lin. square, puberulous, green or tinged with purplish; angles compressed, with erect rudimentary leaves 1 to $1\frac{1}{2}$ lin. long at the teeth;

Flowers: 3 to 6 together near the base of the stems, developing successively; as the flowering proceeds a peduncle is formed, lasting and producing flowers for 2 or 3 years in succession, sometimes growing to 1 in. or more in length;

Pedice: $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, $\frac{1}{4}$ to $1\frac{3}{4}$ lin. thick, puberulous;

Sepals: $2\frac{1}{2}$ to 3 lin. long, lanceolate, acute, puberulous;

Corolla: 2 to $3\frac{1}{2}$ in. in diameter with the lobes extended, puberulous and pale green, often tinged with purplish on the back, slightly rugose on the inner face, pilose with short erect purple hairs on the disk, glabrous on the lobes, which are ciliate with long whitish or pale purplish simple hairs, either entirely of a light to dark livid purple-red or marked with a few transverse pale greenish-white or yellowish lines, tinged at the tips of the lobes and sometimes on the disk with greenish; *lobes* very strongly reflexed, 1 to $1\frac{1}{2}$ in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. broad, lanceolate or ovate-lanceolate, acuminate, with revolute margins, 5 to 9-nerved;

Outer corona: lobes $1\frac{3}{4}$ to $2\frac{1}{3}$ lin. long, oblong-lanceolate or linear-oblong, acute or acuminate, concave-channeled down the face, with the apex recurved, dull purple-brown, ochreous at the base;

Inner corona: lobes $1\frac{1}{2}$ to 2 lin. long, subulate, recurving, with a short dorsal wing-like deltoid crest $\frac{1}{2}$ to 1 lin. long at the base, dull purple-brown.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

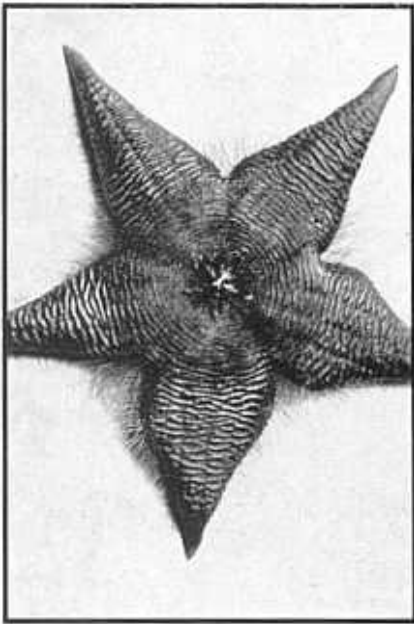


FIG. 421

Stapelia deflexa Jacquin x 1

FIG. 422

Stapelia deflexa Jacquin x 0.75

Stapelia deflexa was introduced about 1800 to the Imperial Gardens in Schönbrunn by Georg Scholl, who perhaps collected it in Little Namaqualand, as years later Dr. R. Schlechter is said to have collected the var. *brownii* in that region. The 2 to 3½-inch flowers are purple-brown, sometimes marked with a few yellowish

lines. There are short purple hairs on the disk; the lobes are glabrous, but fringed with long purple hairs; the lobes are unusually wide at the base, a feature which may be the reason, geometrically, why they often bend straight back and thereby justify the name of the species, the "bent-flowered *Stapelia*."

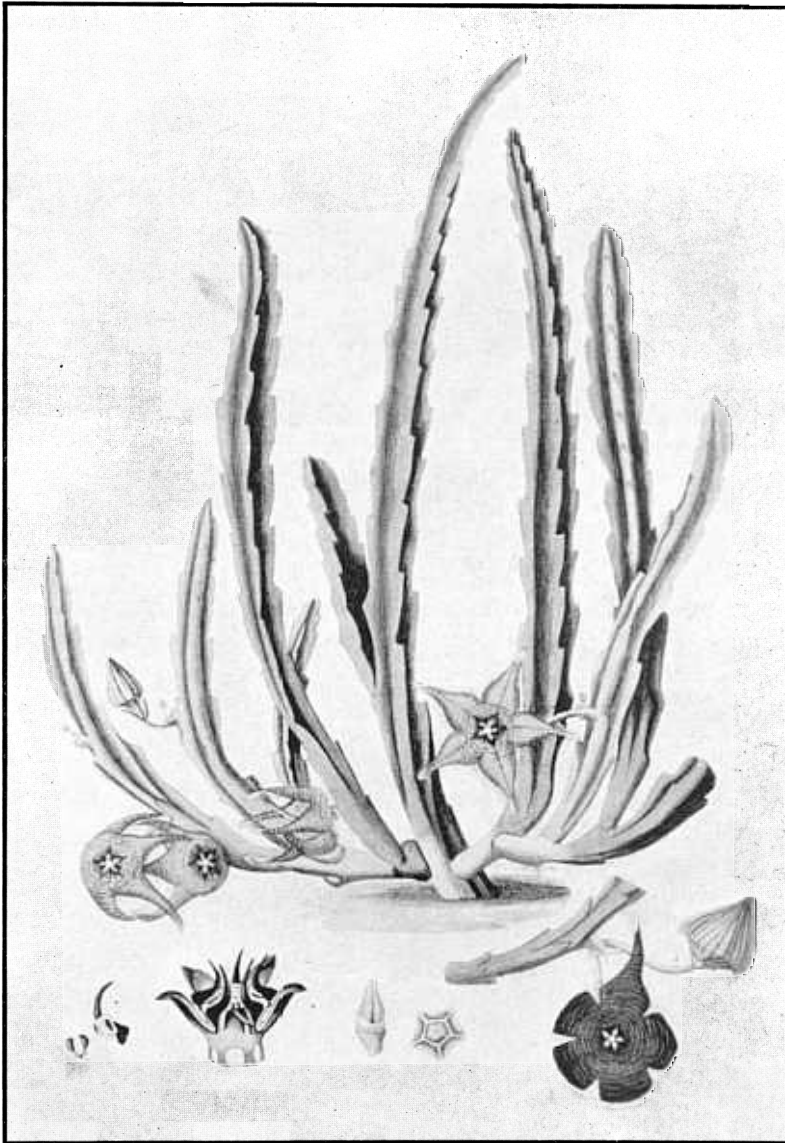


FIG. 423

Stapelia deflexa Jacquin. x 0.25

The side figure at lower right corner shows the var. *atropurpurea*.
From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

Stapelia deflexa

. a. *Stapelia deflexa* var. *brownii* Schinz, Beit. z. Kennt. Afr. Flora, xiii. 879. 1901.

This is the variety which Dr. R. Schlechter is believed to have collected in Little Namaqualand in 1894. The *stems* are more slender than in the type, the brown *flowers* somewhat smaller, the *outer corona*-lobes tongue-shaped and channeled

on the upper face, greyish-white within the channel; the *inner corona*-lobes much longer than in the type, sickle-shaped bending gracefully over the lobes of the outer corona.

Var. b. *Stapelia deflexa* var. *atropurpurea* Hort., Jacquin: Stap., sub t. 20. 1806-19.

The corolla differs from the type in its darker color. The concentric lines on the lobes are whitish and not conspicuous, the ciliation consisting of long red and white hairs. The *outer corona*-lobes are channeled on the inner face, inconspicuously toothed at the apex, and with a dark orange-yellow area at the base, which is very noticeable. The *inner corona*-lobes are formed of an erect fairly straight subulate inner horn, spreading at the back into a short triangular wing, slightly concave at the upper side.

This so-called "dark-purple variety,"

with its dull wine-red flowers, is perhaps to be considered as a hybrid form rather than as a true variety. Nothing is known of its origin, save that it was found growing in the Imperial Gardens at Schönbrunn along with the type. Comparing it with the type brings out the difference between the inner corona-form in the *Stapeltonias* and in the *Gonostemons*, for this variety has a true little dorsal wing, whereas the type has only a short crest. The var. *brownii* appears to have only a filiform recurving horn, with no projection of any sort at the base.

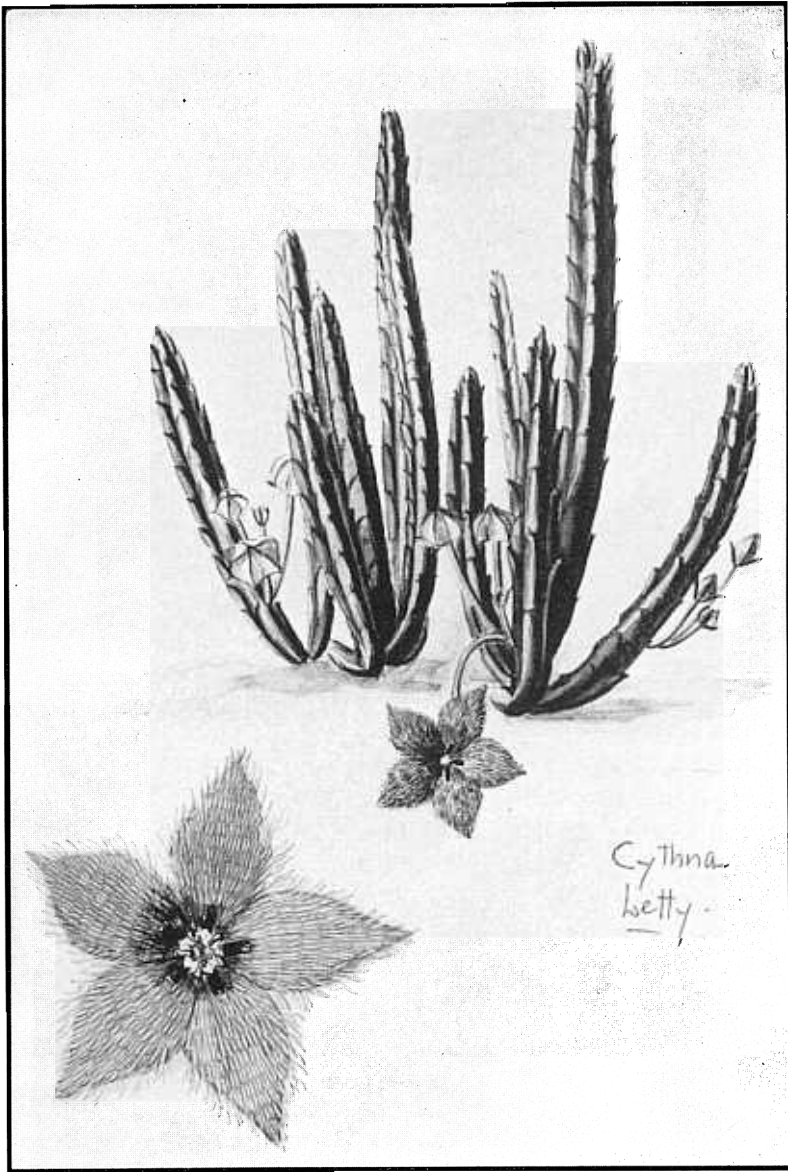


FIG. 424

Stapelia concinna var. *paniculata* N. E. Brown x 0.65
From the original water color drawing by Miss Cythna Letty for the
Flowering Plants of South Africa, 1930.

27. *Stapelia concinna* Masson, Stap. Nov., 15. 1796.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 968):

Stems: erect, 3 to 6 in. high, rather slender, 3 to 4 lin. square, grooved down the sides, with obtuse angles (probably slightly compressed) and erect rudimentary leaves $\frac{1}{2}$ to $\frac{3}{4}$ lin. long at the teeth, velvety-puberulous, dull green, tinted with dull purple;

Flowers: 2 to 3 together near the base of the young stems, successively developed;

*Pedice*l: about $\frac{1}{2}$ in. long, velvety-puberulous;

Sepals: $1\frac{1}{2}$ lin. long, lanceolate, acute, velvety-puberulous;

Corolla: about $1\frac{1}{3}$ in. in diameter, flattish, star-like, with very spreading lobes about 5 to 6 lin. long, $3\frac{1}{2}$ to 4 lin. broad, ovate, acute, rather minutely velvety-puberulous on the back; inner surface transversely rugulose, dull purple (or purple-brown?), lobes with irregular transverse yellowish lines, tips yellowish with an indistinct reticulation of purplish, whole surface thickly covered with rather stiff erect simple white hairs, those at the margins longer than the others not forming spreading cilia;

Outer corona: lobes ascending-spreading, with recurved tips, $1\frac{1}{2}$ lin. long, $\frac{1}{2}$ lin. broad, linear, very obtuse or subtruncate with a minute central tooth or obscurely 3-toothed at the apex, very dark purple-brown or blackish;

Inner corona: lobes very dark purple-brown, connivent below, recurving above, $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, linear-subulate, dorsally flattened (not triquetrous), with the dorsal wing at its base very small, about $\frac{1}{4}$ lin. long, ascending-spreading, deltoid or deltoid-oblong, obtuse.

Type locality: Cape Prov.: "Karoo."

Distribution: Not further known.

The "beautiful *Stapelia*" was one of the long-lost plants of Francis Masson, (who had first collected it in the Karroo prior to 1794,) until the var. *paniculata* was rediscovered about 1930 by J. J. van Nouhuys, growing on shales near the bank of the River Doorn, 50 miles or so north-west of Calvinia. The type itself has not been rediscovered. The species resembles *Stapelia glanduliflora*, but the flowers are borne on shorter pedicels, $\frac{1}{2}$ -inch long, and they are covered on the entire inner surface with stiff simple (instead of clavate) white hairs. They are dull purple in color, with yellowish lines across the face and the tips of the lobes yellow with an indistinct network of purple. The inner corona-lobes have a very small dorsal wing.

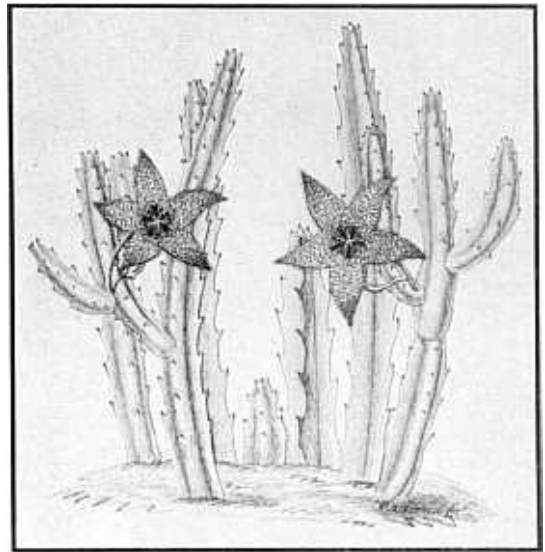


FIG. 425

Stapelia concinna Masson x 0.6
From Masson: *Stapeliae Novae*, 1796.

Var. a. *Stapelia concinna* var. *paniculata* (Willdenow) N. E. Brown, *Flora Cap.*, iv. i. 969. 1909.

Stapelia paniculata Willdenow, *Enum. Pl. Hort. Berol.*, Suppl., 13. 1813.

Tridentea paniculata Schultes, *Syst. Veg.*, vi. 850. 1820.

(Description by Dr. Brown, l.c.):

Corolla: entirely dull purple or purple-brown, without transverse yellow lines on the lobes; Otherwise as in the type.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Calvinia Distr.: on shales near the bank of the River Doorn on the road from Loeriesfontein to Nieuwoudtville.

According to the Flowering Plants of South Africa, "the flower is extremely beautiful and the general color, due to whitish hairs on a purple-brown background, is a deep vinaceous-grey. Unlike most species of the genus, the flowers are entirely without scent."

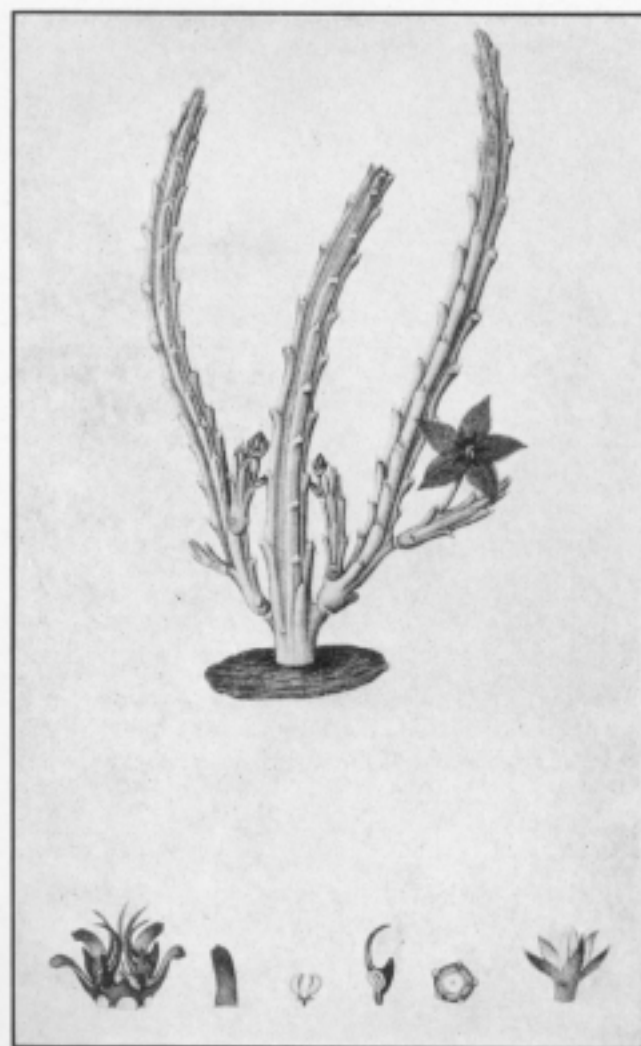


FIG. 426

Stapelia concinna var. *paniculata*
N. E. Brown x 0.5

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

28. *Stapelia flavopurpurea* Marloth, Trans. So. Afr. Phil. Soc., xviii. 48. 1907.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 969):

Stems: lax, decumbent at the base, 3 to 4 in. high, $\frac{1}{3}$ to $\frac{1}{2}$ in. square, with flattish sides, glabrous to the eye, but very minutely puberulous under a lens; rudimentary leaves very minute, erect, about $\frac{1}{2}$ lin. long, deltoid, acute;

Flowers: 1 to 2 together at the lower part of the stems;

*Pedice*l: $\frac{3}{4}$ to $1\frac{1}{4}$ in. long, $\frac{3}{4}$ lin. thick, and together with the calyx minutely puberulous like the stems;

Sepals: $1\frac{1}{2}$ to 2 lin. long, lanceolate, acute;

Corolla: about $1\frac{1}{2}$ in. in diameter, very deeply lobed, the united part forming a very small funnel-shaped tube about 2 lin. deep and 3 to $3\frac{1}{2}$ lin. broad, whitish, covered with short erect clavate purple hairs on the upper part and around its mouth; lobes horizontally spreading, $\frac{2}{3}$ in. long, about $2\frac{1}{2}$ lin. broad when flattened out, linear-lanceolate, acute, margins much recurved, with an exceedingly minute puberulence on the back, transversely rugose, with very prominent ridges and glabrous on the inner surface, not ciliate, dull yellow;

Outer corona: lobes nearly erect, $1\frac{1}{3}$ to $1\frac{1}{2}$ lin. long, oblong, with the sides much incurved and pressed against the base of the inner corona-lobes forming deep nectar-cavities, subtruncate and somewhat toothed on the top margin on each side of the short acute apical spreading point, purple, yellowish at the base;

Inner corona: lobes 2-horned, white, tinged with purple; outer horn free to the base, about 2 lin. long, laterally flattened, linear-subulate, suberect; inner horn about 3 lin. long, dorsally flattened, linear-filiform, connivent at the base, then recurving over the tip of the outer horn.

Type locality: Cape Prov.: Laingsburg Distr.: Tanqua Karroo.

Distribution: Also in Laingsburg Distr.: Matjesfontein; Britstown Distr.: in veld under bushes; Prieska Distr.: Asbestos hills, near Prieska; Griqualand West: Hay Distr.: Asbestos mountains; Herbert Distr.: Mazelsfontein.

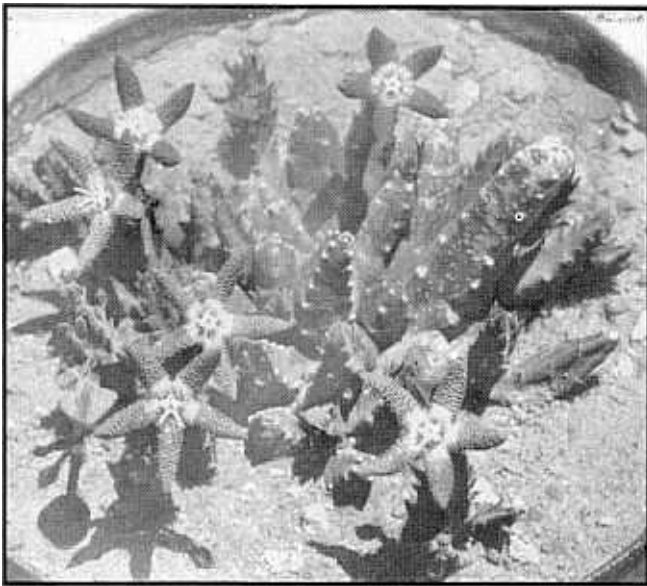


FIG. 427

Stapelia flavopurpurea Marloth x 0.75

From the collection of David Pringle.

The "yellow-purple *Stapelia*" is a very striking species, discovered by Dr. Marloth in the Tanqua Karroo in or shortly before 1907. In the Flora of South Africa, Dr. Marloth refers to the plant as "not rare in the Prieska district and Griqualand West," 250 miles or more north of Laingsburg. We must conclude that the type is widely distributed or that different forms exist in different localities. There is a plant, widely distributed in South West Africa, which we believe should be regarded as a variety (var. *fleckii*), though heretofore looked upon as a separate species. This variety was discovered by Fleck, an associate of Prof. Hans Schinz, in Great Namaqualand in Jan., 1890, but was not formally described until 1909. The type of *S. flavopurpurea*, curiously enough, was not discovered until more than fifteen years later, yet it was described two years earlier, which justifies its ranking as the type.

Both the type and the variety are noteworthy for the presence of clavate hairs on the disk around the corona, a feature found also in *S. glanduliflora*. Howbeit the latter is wholly distinct in other particulars. In the type, these hairs are purple and rather scanty, whereas in the var. *fleckii* they are white and more densely crowded. In both the type and the variety, the corolla-lobes are deeply cleft and gracefully pointed, and covered with marked transverse rugosities. The coloring of the flowers is variable. In the type it is usually spoken of as dull yellow or yellowish-purple. Of the variety W. Triebner writes: "I have about 1,000 plants in my nursery, in colors from green to grey, from



FIG. 428

Stapelia flavopurpurea Marloth x 0.6

Photo by S. Tapscott.

yellow to apricot, and from rose to deep red. This year they all bloomed profusely, some of the plants having 40 to 60 flowers open simultaneously, an extraordinary sight."

S. flavopurpurea has a much better reputation as to the odor of its flowers than have most of the other species in the tribe. Dr. Marloth spoke of the type as having "a beautiful flower with a faint scent," while Prof. Dinter comments on the pleasant odor of the var. *fleckii* and compares it to that of honey.

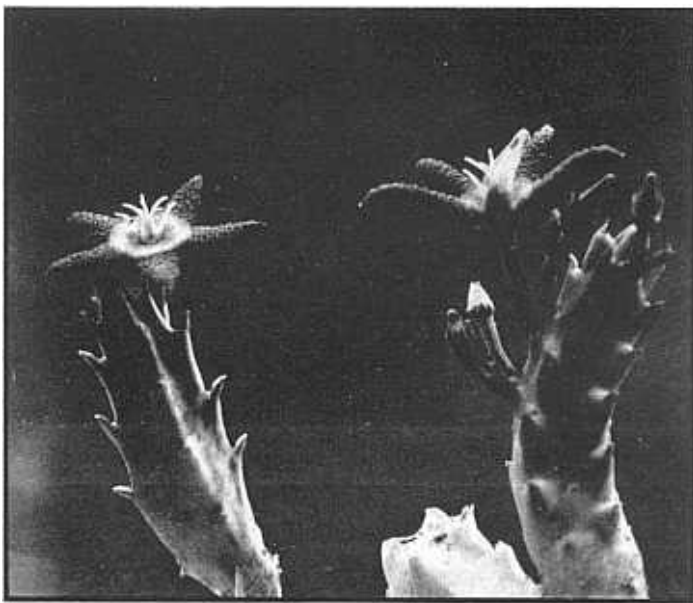


FIG. 429

Stapelia flavopurpurea var. *fleckii*, comb. nov. x 1

Photo by Prof. Dinter in Neue Pfl. D. S.-W. Afr., 1914.

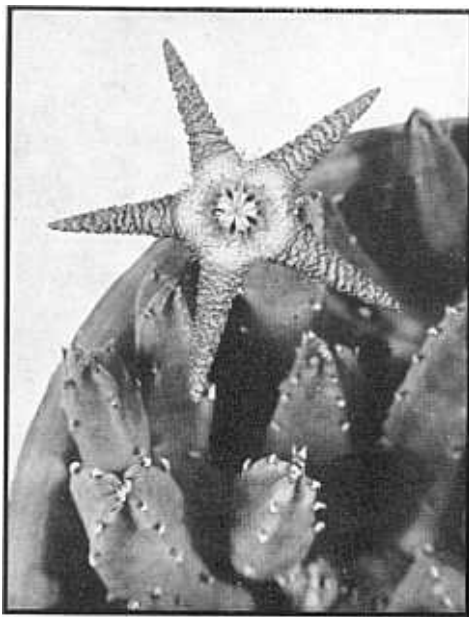


FIG. 430

Stapelia flavopurpurea var. *fleckii*, comb.

nov. x 1.5

From the collection of Mrs. J. M. Warner.

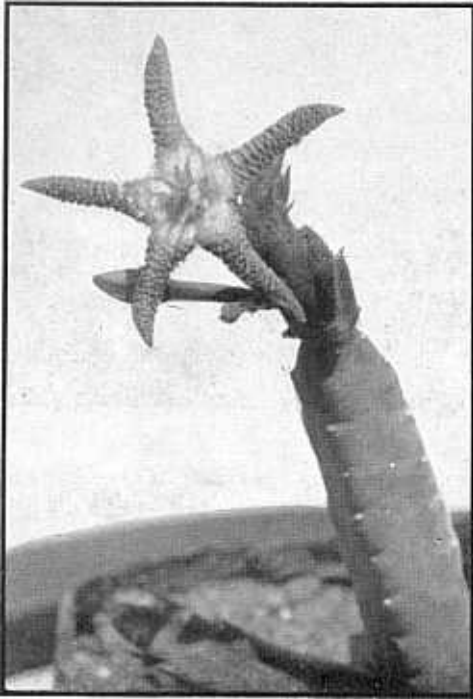


FIG. 431

Stapelia flavopurpurea var. *fleckii*, comb. nov. x 1.

From the collection of David Pringle.

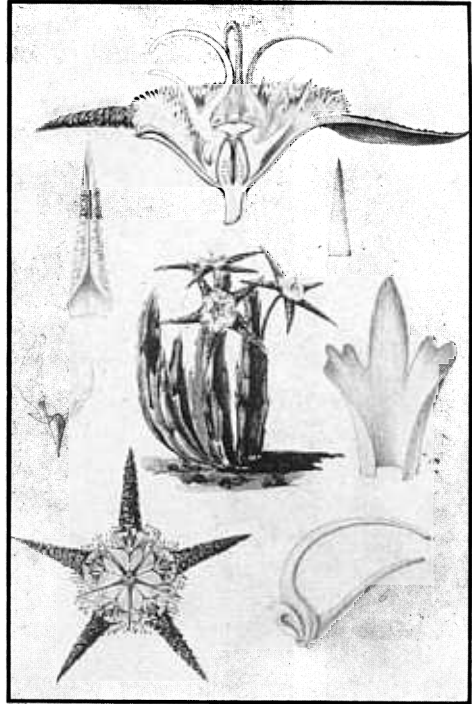


FIG. 432

Stapelia flavopurpurea Marloth

From the original water color drawing by Miss Stella Gower (now Mrs. J. H. Louw) for the Flowering Plants of South Africa, 1924.

Var. a. *Stapelia flavopurpurea* var. *fleckii* (Berger et Schlechter), comb. nov.

Stapelia fleckii Berger et Schlechter, Nat. Gesel. Zürich, iv. 490. 1909.

(Description by A. White and B. L. Sloane):

Flowers: 1 to 4, near the tips of the stems, developing successively;

Corolla: with the clavate hairs in the tube and around its mouth somewhat denser and white, and the color of the entire corolla more ochreous-yellow to greenish and sometimes rose or reddish;

Otherwise as in the type.

Type locality: South West Africa: Great Namaqualand: near Rehoboth.

Distribution: Plentiful in the southern half of South West Africa, extending north to a little above the tropic line.

"I question whether this variety can be maintained," writes Mr. Triebner, "for if one of the existing differences in color in this highly variable species is recognized,

then all should be, and there are at least 15 distinct shades among the flowers I have seen in the wild state."



FIG. 433

Stapelia acuminata Masson x 1.

Photo by Carl Luckhoff.

29. *Stapelia acuminata* Masson, Stap. Nov., 15. 1796.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 965):

Stems: erect, 3 to 6 in. high, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, puberulous, purplish-brown tinted; angles compressed, toothed; rudimentary leaves erect, $\frac{3}{4}$ lin. long;

Flowers: in fascicles of 2 to 5 at or above or occasionally below the middle of the stems, opening successively;

Pedicel: 2 to 4 lin. long, velvety-pubescent;

Sepals: 2 to $2\frac{1}{2}$ lin. long, ovate-lanceolate, acute, velvety-pubescent;

Corolla: acuminate in bud; $1\frac{1}{6}$ to $1\frac{3}{4}$ in. in diameter when expanded, rotate, softly puberulous on the back, glabrous and transversely rugose all over the inner surface, ciliate to the tips of the lobes with long white simple hairs, dark purple-brown with transverse yellowish lines on the rugosities; *lobes* 5 to 8 lin. long, 3 to $3\frac{1}{2}$ lin. broad, ovate, acuminate into a short tail-like point;

Outer corona: lobes $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, $\frac{1}{2}$ to $\frac{3}{4}$ lin. broad, slightly ascending, linear-oblong, bifid or minutely 3-toothed at the apex, mottled with yellowish and purple-brown;

Inner corona: lobes 2-horned, pale reddish spotted with purple-brown; outer horn $\frac{3}{4}$ to 1 lin. long, free to the base, spreading, laterally flattened, narrowly deltoid or deltoid-subulate, acute, more or less toothed on the upper margin; inner horn $1\frac{1}{4}$ to $1\frac{3}{4}$ lin. long, linear-filiform, dorsally flattened, connivent at the base, then erectly spreading or recurving in a bold arc above the outer horn.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not further known.

The "acuminate *Stapelia*" was christened by Masson in reference to the tail-like points of the corolla-lobes. The flowers are dark purple-brown with transverse yellow lines on the rugose ridges. The inner horn of the inner corona-lobes is slender, recurving over a small deltoid wing. The stems are 3 to 6 inches tall and minutely puberulous, though Masson described them

as glabrous. He first obtained the plant from Little Namaqualand about 1791, and it was again collected there over a hundred years later by Templeman, who also discovered a "short-lobed variety," var. *brevicuspis*, with flowers smaller than in the type (about $\frac{3}{4}$ inch in diameter, instead of $1\frac{1}{2}$ inches), and the lobes not tapering into an acuminate point.

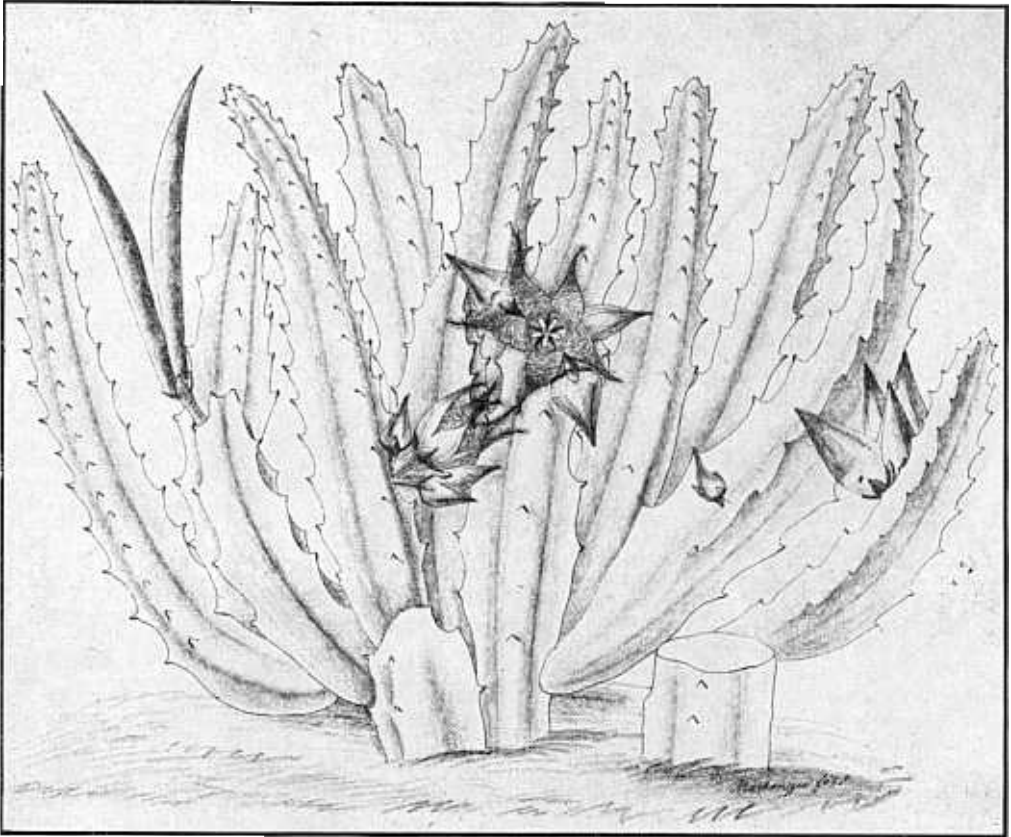


FIG. 434

Stapelia acuminata Masson x 0.6

From Masson: *Stapeliae Novae*, 1796.

Var. a. *Stapelia acuminata* var. *brevicuspis* N. E. Brown, *Flora Cap.*, iv. i. 965. 1909.

(Description by Dr. Brown, l.c.):

Stems: rather smaller than in the type (*Pillans*) ;

Corolla: 9 to 10 lin. in diameter; *lobes* 3 to 4 lin. long, $2\frac{1}{2}$ lin. broad, ovate, acute, not tapering into a point as in the type, and perhaps with brighter yellow lines, but with no other distinction.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not further known.

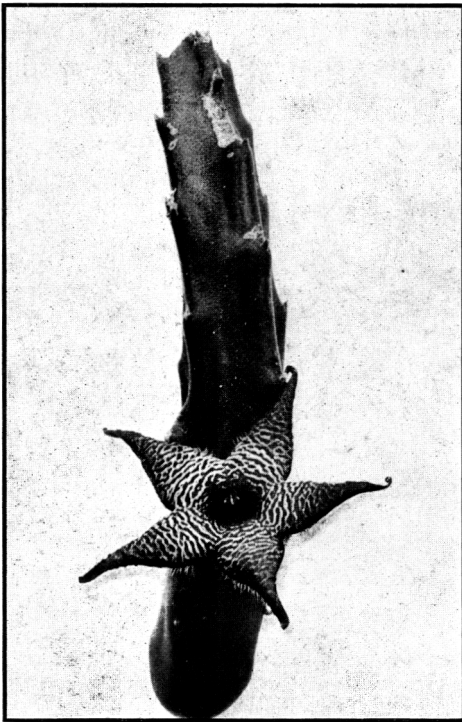


FIG. 435

Photo by S. Tapscott of an unidentified *Stapelia* of unknown origin. It may prove to be a new species, related either to *S. arenosa* or *S. acuminata*, although the markings on the corolla-lobes are not as fine as they are in the latter plant. The corona form has not been determined.

30. *Stapelia surrecta* N. E. Brown, Flora Cap., iv. i. 970. 1909.

(Description by Dr. Brown, l.c.):

Stems: (only 1 branch seen) $2\frac{1}{2}$ to 3 in. (or more?) high, 5 lin. (or more?) square, with slightly concave sides and the teeth on the rounded angles tipped with erect acute rudimentary leaves 1 lin. long, velvety-puberulous, green;

Flowers: 2 to 3 together, successively developed, along the sides near the top of the stems;

Pedicel: erect, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, rather slender, $\frac{1}{2}$ to $\frac{3}{4}$ lin. thick, puberulous;

Sepals: $1\frac{1}{2}$ to $1\frac{3}{4}$ lin. long, lanceolate, acute;

Corolla: about 1 in. in diameter with the lobes spread out, minutely puberulous on the outside, glabrous and slightly rugulose on the inner surface, not ciliate; *tube* distinct, about $2\frac{1}{2}$ lin. long, cup-shaped; *lobes* probably spreading, $4\frac{1}{2}$ lin. long, in the only flower seen, 2 lin. broad at the base, thence tapering to a very acute point, rather prominently 3-nerved on the back;

Outer corona: lobes horizontally spreading, $\frac{1}{2}$ lin. long and broad, subquadrate, minutely 3-crenate at the truncate apex, concave down the face;

Inner corona: lobes 2-horned; outer horn ascending-spreading, 1 lin. long, wing-like, about $\frac{2}{5}$ lin. broad at the base, thence tapering to the obtuse apex, entire; inner horn $1\frac{1}{4}$ lin. long, subterete-subulate, ascending-recurved.

Type locality: Cape Prov.: Laingsburg Distr.: Tanqua Karroo.

Distribution: Also in Laingsburg Distr.: Whitehill area; Ceres Distr.: Ceres Karroo.

This distinctive species was discovered by Dr. Marloth in the westerly Karroid areas about 1905. As the name suggests, the flowers are conspicuous for the manner in which they "surge," or rise up, from the erect pedicels near the top of the velvety stems. According to Mr. Luckhoff, "the color is a rather pretty chestnut-brown on the inner surface." In the new variety, var. *primosii*, discovered by R. Primos in 1935, the color is very variable, from yellow to brownish-purple, even in different flowers from a single plant. The corolla is puberulous outside, glabrous within, slightly rugose (but smooth in the variety), the lobes not ciliate and tapering to very acute points (more spreading in the variety). The inner corona is two-horned, the inner horn slender and much longer than the anthers, with a slightly shorter wing-like outer horn.



FIG. 436
Stapelia surrecta N. E. Brown x 1.5
Photo by Carl Luckhoff.

Var. a. *Stapelia surrecta* var. *primosii* Luckhoff, var. nov.

(Description by C. Luckhoff):

Corolla: inner surface smooth, pale yellow to brownish-purple, usually uniformly yellow, less often mixed, and only occasionally uniformly brownish-purple; *lobes* more spreading than in the type; Otherwise as in the type.

Type locality: Cape Prov.: Sutherland Distr.: Verlaten Kloof, a few miles south of Sutherland.

Distribution: Also fairly frequent further south.

FIG. 437

Stapelia surrecta var. *primosii* Luckhoff x 1.5

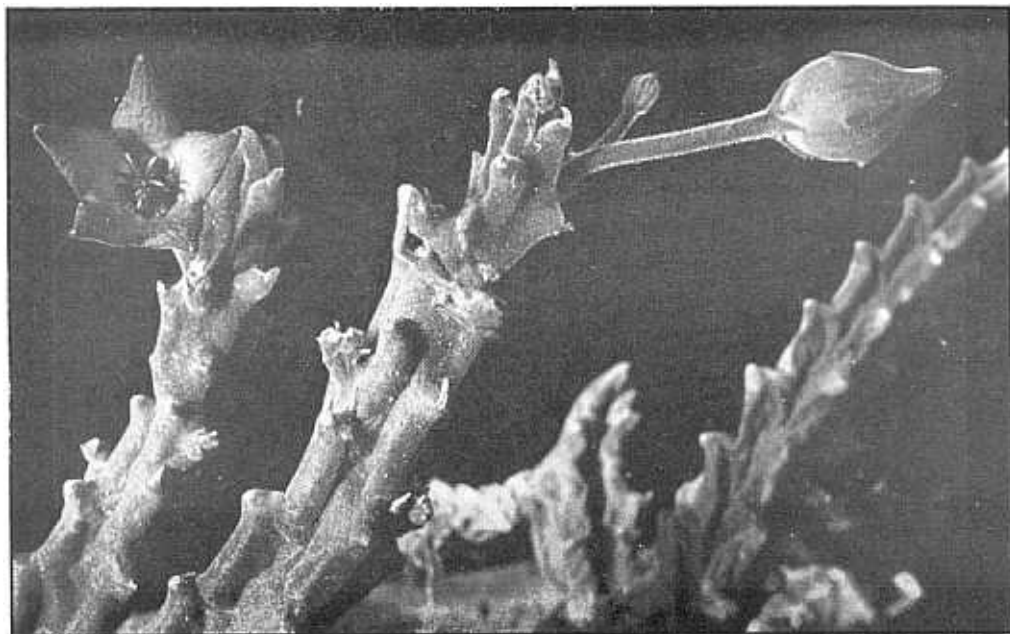
Photo by Carl Luckhoff.



FIG. 438

Stapelia surrecta var. *primosii* Luckhoff

Photo by Carl Luckhoff.



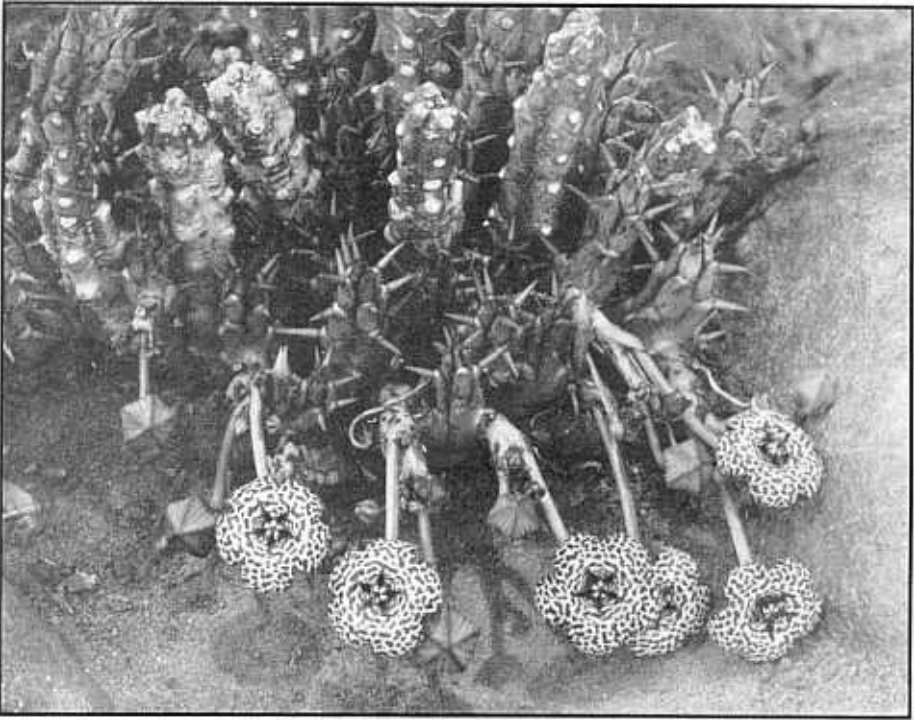


FIG. 439

Stapelia jucunda N. E. Brown x 1.

Photo by S. Tapscott.

31. *Stapelia jucunda* N. E. Brown, Flora Cap., iv. i. 975. 1909.

(Description by Dr. Brown, l.c.):

Stems: compactly erect, 2 to 3 in. high, 4 to 7 lin. square, obtusely 4-angled, with spreading stoutly subulate acute deciduous teeth $\frac{1}{2}$ to $\frac{3}{4}$ lin. long, leaving rather large and slightly prominent whitish tubercle-like scars, glabrous, green or greyish-green, spotted and mottled with purple, rather soft in substance;

Flowers: 1 to 3 together at the middle or upper part of the stems, successively developed;

*Pedice*l: $\frac{1}{2}$ to 1 in. long, glabrous;

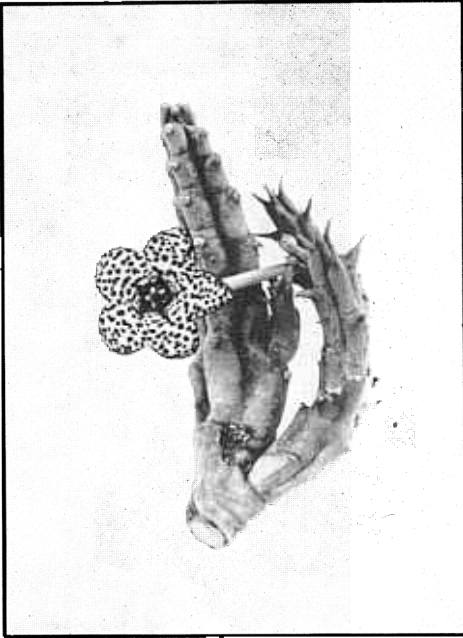
Sepals: 1 to $1\frac{3}{4}$ lin. long, ovate or ovate-lanceolate, acute or acuminate, glabrous;

Corolla: nearly flat, with the centre depressed, lobed to half-way down, about 1 in. in diameter, glabrous on both surfaces, ciliate from near the base nearly to the tips of the lobes with long vibratile clavate purple hairs, smooth and light green on the back, dotted and spotted with purple-brown; inner surface slightly rugulose, cream-color, spotted all over and edged on the lobes with purple-brown, the spots around the corona not smaller than the rest; *lobes* 3 to $3\frac{1}{2}$ lin. long and as much in breadth, broadly ovate or deltoid-ovate, acute;

Outer corona: lobes erectly spreading, $1\frac{1}{2}$ to $1\frac{3}{4}$ lin. long, $\frac{1}{2}$ to $\frac{3}{4}$ lin. broad at the base, thence gradually tapering to the minutely notched or acute apex, concave down the face, dark purple-brown;

Inner corona: lobes about 3 times as long as the anthers, $1\frac{1}{2}$ lin. long, subulate-filiform, acute, connivent-erect, usually more or less spreading at the tips, and with a short dorsal gibbosity at their base, marked with cream-color and purple and tipped with white.

Type locality: Cape Prov.: Griqualand West: Herbert Distr.: near Douglas.



Distribution: Also in Griqualand West: Hay Distr.: Paardeberg Mountains; Prieska Distr.; Calvinia Distr.; Orange Free State: near Fauresmith.

The "delightful *Stapelia*" was first collected, we believe, by Mrs. Barber near Douglas in Griqualand West and likewise by C. E. Pillans. The stems are obtusely angled and glabrous. The flowers are cream-colored on the inner face, with purple-brown spots throughout and a margin of the same color around the lobes. The corolla is slightly depressed at the centre, glabrous throughout but somewhat rugose, the lobes fringed almost to their tips with long vibratile clavate purple hairs.

FIG. 440

Stapelia jucunda N. E. Brown x 1.

Photo: G. W. Reynolds, Johannesburg, from a plant collected near Luckhoff, O. F. S.



FIG. 441

Stapelia jucunda N. E. Brown x 1

Photo by S. Tapscott.



PLATE XII.

Stapelia jucunda N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1936.



FIG. 442

Stapelia jucunda N. E. Brown x 1
Photo by Carl Luckhoff.

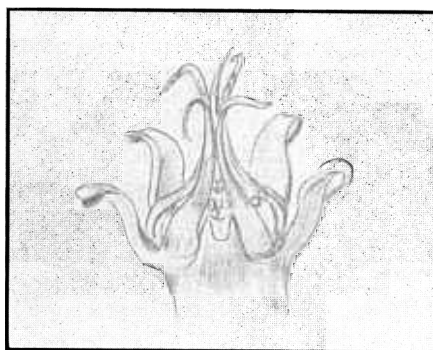


FIG. 443

Stapelia jucunda N. E. Brown
Enlargement of the corona, from a drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1936.

Var. a. *Stapelia jucunda* var. *deficiens* N. E. Brown, Flora Cap., iv. i. 976. 1909.
(Description by Dr. Brown, l.c.):

Corolla: greenish-primrose, with very numerous rather minute purple-brown dots, those around the corona rather smaller than the rest; *disk* very broadly and shallowly funnel-shaped; *lobes* ciliate from near the base to about the middle with subclavate purple hairs about $\frac{1}{2}$ lin. long;

Outer corona: lobes $\frac{3}{4}$ to 1 lin. long, entire, acute;

Inner corona: lobes without a small dorsal gibbosity at their base;

Otherwise as in the type.

Type locality: Cape Prov.: Victoria West Distr.: Biesjes Poort.

Distribution: Not further known.

The "deficient variety" is so called because the inner corona-lobes do not have the small dorsal projection, characteristic of the type. It is also distinctive for the greenish-primrose color of the corolla,

marked with purple-brown dots. The lobes are ciliate only half-way up. Discovered by Mr. Pillans in the central part of the Cape Province, about 150 miles south of the habitat of the type.

32. *Stapelia dinteri* Berger, Neue Pfl. Deutsch-Südwest-Afr., 51. 1914.

(Description by Prof. K. Dinter, l.c., translated from the German):

Stems: 8 to 12 cm. high, $1\frac{1}{2}$ cm. thick, tapering near the apex, very obtusely 4-angled; angles divided into oblong sections from whose upper edges small leaves 2 mm. long spread horizontally; dull greyish-green, with many large brown spots and dots, more especially in the grooves at the edges of the stem-sections;

Flowers: arising from peduncles on the lower part of the stems, which attain a length of 6 cm. and a thickness of 6 mm. at the base; successively developed in a spiral;

Pedicel: about 12 mm. long;

Sepals: 3 mm. long, acuminate;

Corolla: outside greenish-brown, slightly shiny, with 5 distinct nerves on the lobes; inside greenish-yellow, with dense small red-brown dots and a velvet-red-brown margin all around the lobes, 1 mm. wide at the sinuses, 3 to 4 mm. wide at the apex of the lobes, sharply defined along its inner edge; diameter from the tip of one lobe to the opposite sinus $2\frac{1}{2}$ cm., from the tip of one lobe to that of another 3 cm.; *tube* flattish, containing the ebony-black corona; *lobes* 1 cm.

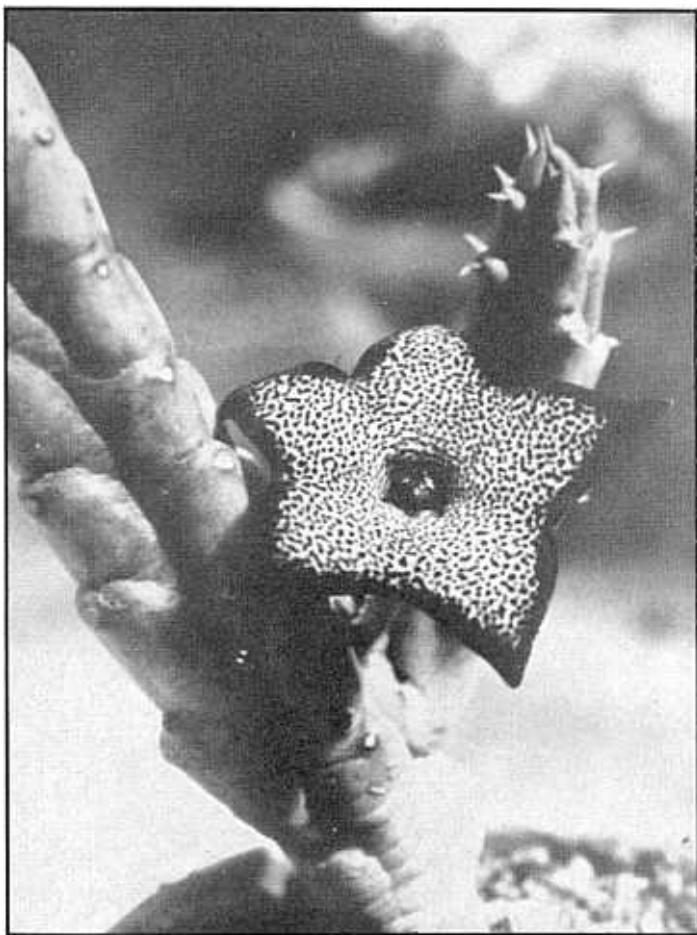


FIG. 444

Stapelia dinteri Berger x 3.

Photo by Carlos Faust.

long and equally broad at the base, the sides drawing towards the apex in faint convex arcs, ciliate at the sinuses with a few vibratile purple hairs 3 mm. long;

Outer corona: lobes narrow, shallowly channeled down the face, dividing into 2 rounded points at the apex;

Inner corona: lobes erect, the broad basal part yellowish-white, consisting of a long filiform horn, with a short rather thick recurved dorsal projection.

Type locality: South West Africa: Klein Karas Mountains.

Distribution: Not further known.

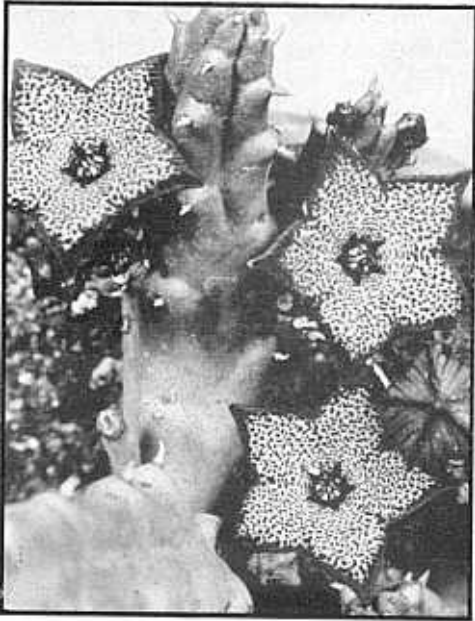


FIG. 445

Stapelia dinteri Berger x

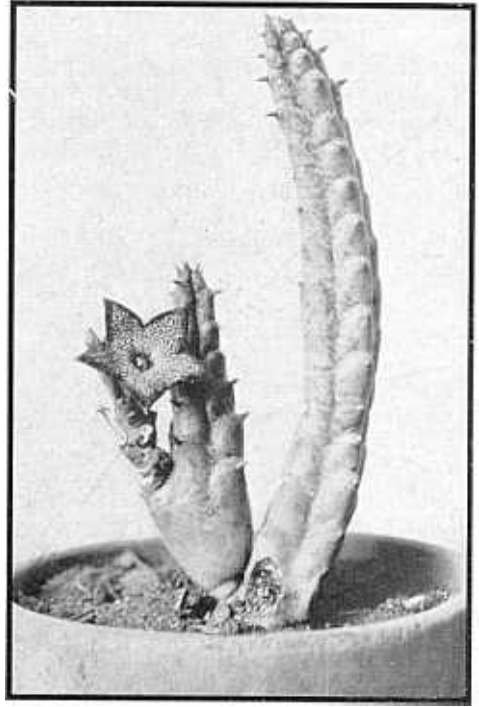


FIG. 446

Stapelia dinteri Berger x 0.75

From W. I. Beecroft Gardens. Photo by Haven.

"Dinter's *Stapelia*" has stems 3 to 5 inches tall, the rounded angles divided into oblong segments from whose upper part little rudimentary leaves project. The corolla-lobes of the 1-inch flowers are margined in velvet-red-brown and within this border the whole surface is yellow-green, strewn with red-brown dots. The lobes are fringed near the base with a few vibratile clavate purple hairs. The corona is jet-black and set in a small central tube. The lobes of the inner corona consist of a slender horn, with a small thick knob stick-

ing out dorsally from the base. The masculine genitive of the specific name shows that Alwin Berger attributed the discovery of the plant to Kurt Dinter, from whom he received it, but Prof. Dinter tells affectionately of his wife's success on the botanical expedition on which she first collected it: "I am greatly indebted to my wife," he wrote, "who collected for me in Klein Karas in October, 1913, and there discovered 11 brand-new species, besides many previously known at the Cape but new from South West Africa."

33. *Stapelia ausana* Dinter et Berger, Fedde: Repert., xxiii. 365. 1927.

This is an imperfectly described plant, of which we are told, l.c., that it is "a handsome species, nearly related to *Stapelia dinteri*, from which it may easily be distinguished, aside from the different con-

struction of the corona, by the absence of the blackish-red border around the inner face of the corolla-lobes. The flowers are 2 to 2½ cm. in diameter, wholly flat, dull yellow, with dense brown spots."

Type locality: South West Africa: Aus.

Distribution: Not further known.

Discovered by Prof. Dinter in 1910, near Aus, about 50 miles inland from Lüderitz Bay, South West Africa. This habitat is about 125 miles from that of

Stapelia dinteri. Whether it should be considered as a variety of that species cannot be decided until a fuller description is available.

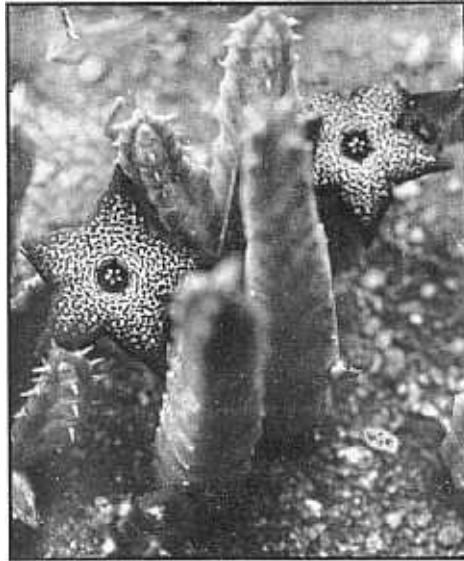


FIG. 447

Stapelia ausana Dinter et Berger x 1.

Photo by W. Triebner. The identification is uncertain.

Comparing this photograph with Fig. 444, it will be noticed that the dark edging of the corolla-lobes does not form a regular border, but merges irregularly into the broken area towards the disk.

34. *Stapelia divaricata* Masson, Stap. Nov., 17. 1796.*Stapelia pallida* Wendland, Coll. Pl., ii. 39. 1809-19.*Gonostemon divaricata* Haworth, Syn. Pl. Succ., 12. 1812.*Gonostemon pallidum* Sweet, Hort. Brit., 1 Ed., 278. 1827.*Gonostemon divaricatum* Sweet, Hort. Brit., 1 Ed., 278. 1827.*Gonostemon pallidus* Loudon, Hort. Brit., 96. 1830.*Gonostemon divaricatus* Loudon, Hort. Brit., 96. 1830.*Gonostemon pallida* G. Don, Gen. Hist., iv. 117. 1838.*Stapelia pallens* Hort., Steudel: Nom. Bot., 2 Fd., ii. 631. 1841.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 956):

Plant: very laxly branching at the base, with erect, straggling, spreading or diverging stems 3 to 4 in. long, $3\frac{1}{2}$ to 5 lin. square, glabrous; angles somewhat compressed, with minute erect rudimentary leaves on the small teeth;

Flowers: 1 to 6 together, towards the base of the young stems;

*Pedice*l: $\frac{1}{3}$ to $\frac{3}{4}$ in. long, very minutely or papillate-puberulous;

Sepals: $1\frac{1}{2}$ to 2 lin. long, lanceolate, acuminate, glabrous;

Corolla: 1 to 2 in. in diameter, according to the figures, smaller when dried, flattish, with recurved-spreading lobes, glabrous on the back and on the smooth shining inner surface, ciliate with simple white hairs except at the tips of the lobes, pale greenish on the back, varying from pale flesh-color to dull purple with greenish tips on the inner face; lobes 6 to 10 lin. long, 4 to $4\frac{1}{2}$ lin. broad, ovate-lanceolate, acuminate, with revolute margins;

Outer corona: lobes spreading, nearly 1 lin. long, $\frac{3}{4}$ lin. broad, subquadrate, slightly broadest at the subtruncate minutely 3-toothed or apiculate apex, reddish or perhaps brownish-orange, with a yellow base;

Inner corona: lobes about $\frac{3}{4}$ lin. long, incumbent upon the backs of the anthers (and in dried flowers shorter than them), with very short erect tips, ovate or narrowly oblong-ovate, obtuse, with a very short dorsal projection or gibbosity at the base, reddish or perhaps brownish-orange.

Type locality South Africa: without precise locality.

Distribution: Cape Prov.: Riversdale or Swellendam Distr. near Heidelberg

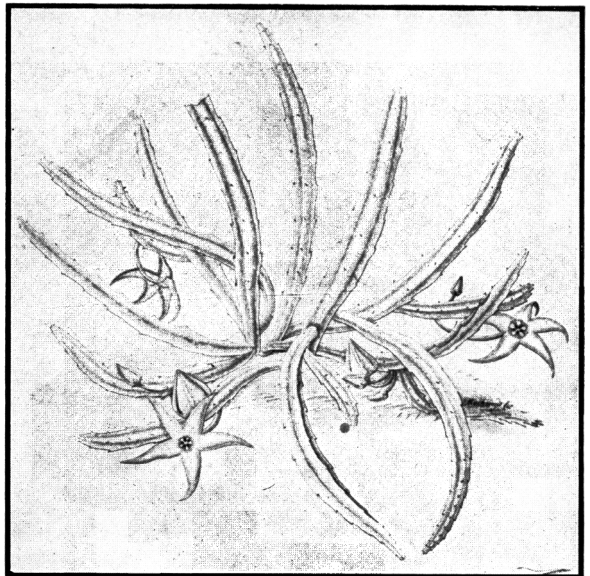


FIG. 448

Stapelia divaricata Masson x 0.5
From Masson: *Stapeliae Novae*, 1796.

The "straggling *Stapelia*" was discovered by Francis Masson prior to 1792. It remained in cultivation in England and on the Continent for a few years and then disappeared, as *Stapeliads* are sometimes wont to do. In May, 1935, it was again collected by Miss K. C. Stanford, near Heidelberg. The name of the plant refers to the irregular stems, which, as Dr. Sims wrote, "going off almost at right angles and being long and tapering, at once mark it from every other species, even when out of bloom." The flowers have a glabrous corolla, smooth and shining inside, deeply lobed, dull purple to pale flesh-color with greenish tips to the lobes, partly ciliate with simple white hairs. The inner corona-lobes are incumbent upon the anthers, with short erect tips and with a short dorsal gibbosity at the base. Haworth compared these inner corona-lobes to an inverted foot and founded his genus, *Gonostemon*, upon the species. The flowers vary considerably in size and color and are almost odorless. The synonymy of the species (like that of *Stapelia stricta*) is amusing, for the gender of the name *Gonostemon* puzzled the early botanists. Sweet was the first to

interpret it correctly as neuter, while Haworth, who had coined the word, and G. Don favored the feminine, and Loudon the masculine.



FIG. 449

Stapelia divaricata Masson x 0.8

From a drawing by Sydenham Edwards, in Curtis's
Botanical Magazine, 1807.

35. *Stapelia stricta* Sims, Bot. Mag., t. 2037. 1819.*Gonostemon stricta* Haworth, Suppl. Pl. Succ., 12. 1819.*Gonostemon strictum* Sweet, Hort. Brit., 1 Ed., 278. 1827.*Gonostemon strictus* Loudon, Hort. Brit., 96. 1830.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 957):

Stems: rather crowded, erect, 3 to 5 in. high, slender, 3 to 3½ lin. square, with minute erect rudimentary leaves at the small teeth, probably glabrous;*Flowers*: 2 or more together at the base of the stems, developing successively;*Pedicel*: "shorter than the flower;"*Corolla*: about 12⅓ in. in diameter, flat, star-like, glabrous on the inner surface, faintly mottled with dull purple on a slightly paler ground, with the centre of the disk rather paler and the margins of the lobes dull greenish; *lobes* about 7 lin. long and 4 to 4½ lin. broad, ovate, acute, flattish, not revolute at the margins, not ciliate;*Outer corona*: lobes about 1 lin. long and 2⅓ lin. broad, oblong, apparently spreading, recurved at the obtuse or emarginate tips, yellowish-brown, with the apex and a short median stripe purple-brown;*Inner corona*: lobes incumbent upon the backs of the anthers with very shortly upcurved tips, about ¾ lin. long, narrowly ovate, acute, slightly gibbous at the base on the back, purple-brown.

Type locality: Cape Prov.: without precise locality.

Distribution: Unknown.

A species now known only through the figure in Curtis's Botanical Magazine. Dr. Sims wrote that it was a "native of the Cape of Good Hope," and it appears to have been not infrequent in cultivation in England prior to 1819. It is evidently closely allied to *S. divaricata*, from which we are told that it differs in the flatter and less sharply pointed corolla-lobes and in the absence of ciliation. The stems are more compact and quite erect. The name, the "upright Stapelia," derives from this last feature, which at once separates the species from *S. divaricata*. The curious synonymy is referred to in our note to *S. divaricata*.

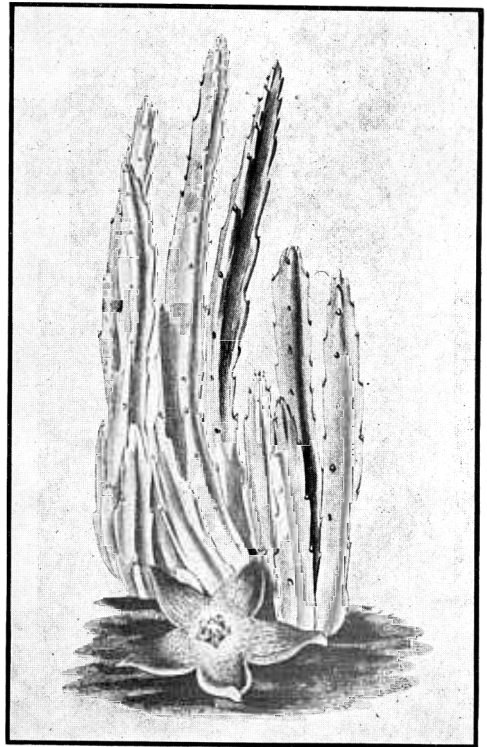


FIG. 450

Stapelia stricta Sims x 0.6

From Curtis's Botanical Magazine, 1819.

36. *Stapelia cincta* Marloth, Trans. Roy. Soc. So. Afr., iii. 125. 1913.

(Description based on that by Dr. Marloth, l.c., in part translated from the Latin):

Plant: small, about the size of *Duvalia reclinata*; *stems* nearly quadratic, very short, 3 to 4 cm. high and 16 to 20 mm. in diameter; sides obtuse, almost flat; teeth on the angles $\frac{1}{2}$ mm. long;

Flowers: solitary, from the base of the stems;

Sepals: broadly ovate, suddenly contracted into a point, their length about $\frac{1}{3}$ that of the corolla-tube, glabrous;

Corolla: 24 to 26 mm. in diameter; *tube* hemispherical, (about 6 mm. in diameter?); *lobes* somewhat longer than the tube, 1 cm. long, 5 to 6 mm. broad at the base, ovate-acuminate, rugose, not ciliate, ochreous, densely mottled with maroon and margined with a dark maroon band, $1\frac{1}{2}$ to 2 mm. broad;

Outer corona: lobes 2 mm. long, narrowly lanceolate, dark maroon;

Inner corona: lobes erect, very narrow below, filiform above, slightly longer than the outer corona-lobes, slightly recurved and clavate at the tips, dark maroon.

Type locality: Cape Prov.: Beaufort West Distr.: Nieuwveld Mountains near Beaufort West.

Distribution: Not further known.

Collected by Dr. Marloth in the Great Karroo about 1911. The name, "girdled *Stapelia*," refers to the margin of dark maroon which edges the corolla-lobes. The species is akin to *Stapelia stricta*, but differs

in the smaller, 1-inch flowers, the spotted corolla with its distinctive maroon edging on the lobes, the acuminate lobes of the outer corona and the longer lobes of the inner corona.

37. *Stapelia dwequensis* Luckhoff, sp. nov.

(Description by C. Luckhoff):

Notis hisce perspicuis species statim dignoscitur: floribus campanulatis, tubo 1.2 cm. lato totiesque profundo; lobis patentibus 1.5 cm. longis; corolla intus papillis obscuriusculis asperula pergamenacea, dilute citrina, maculis purpureis magnis notata; coronae exterioris lobis tubo corollae arcte adpressis sinosque inter corollae lobos subattingentibus; coronae interioris lobis incumbentibus mox liberis, filiformibus, fauce tubi corollae vix brevioribus.

Stems: laxly branching, acutely 4-angled, green, mottled with purple;

Flowers: drooping, arising 2 to 4 together from peduncles near the extremities of the stems;

Pedicel: about 4 cm. long;

Sepals: 3 mm. long, glabrous;

Corolla: 4.1 cm. in diameter, with a campanulate *tube* 1.2 cm. in diameter and depth; outside glabrous, light green, with rows of interrupted purple dots extending along the length of the lobes; inside asperate with ill-defined papillae, resembling the texture of parchment paper, pale lemon yellow, with large irregular purple spots, becoming smaller within the tube; *lobes* spreading, 1.3 to 1.5 cm. long, 1.2 cm. wide at the base, acute;

Outer corona: lobes 8 mm. long, ascending, closely applied to the walls of the tube and reaching almost to the angles between the corolla-lobes, about 1 mm. wide at the base, linear, with a ridge running down the inner face and ending in a small papilla near the base, deep blackish-purple;

Inner corona: lobes 8 mm. long, incumbent on the anthers at the base, thence freely erect and filiform, reaching nearly to the mouth of the tube, deep blackish-purple, with an orange patch at the base.

Type locality: Cape Prov.: Ceres Distr.: on the banks of the Dwequa.

Distribution: Not further known.

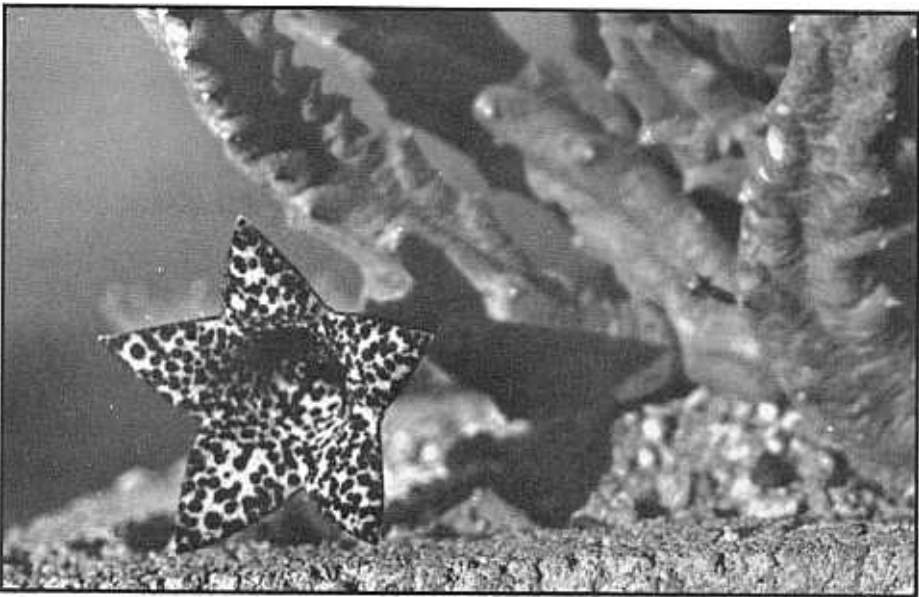


FIG. 451

Stapelia dwequensis Luckhoff x 1

Photo by Carl Luckhoff.

The "Dwequa Stapelia" was discovered by Dr. J. Luckhoff in 1931, on the banks of the Dwequa River, Ceres district. The Dwequa is one of the rivers draining the Hex River mountains on the Karroo side,



FIG. 452
Stapelia dwequensis Luckhoff x 1.25
Photo by Carl Luckhoff.

and a tributary of the Doorn and Olifants Rivers. The specimens collected by Dr. Luckhoff have all perished and the species has not been rediscovered. The flowers are campanulate, with a half-inch tube and spreading lobes, whose rough inner surface is compared by Carl Luckhoff to the texture of parchment paper, lemon-yellow with irregular purple spots. The corona-lobes of both the inner and outer series are remarkably long, about a third of an inch, those of the outer corona being appressed against the wall of the corolla-tube, reaching almost to the sinuses between the corolla-lobes, and those of the inner corona rising above the anthers nearly to the mouth of the tube.

Though on general grounds *Stapelia dwequensis* appears quite unlike *S. jucunda*, yet on closer analysis it is found to be more closely related to the latter species than to any other in the genus. The two have the following points in common: similar stems, long pedicels, the drooping habit of the flowers, the color of the corolla, and the corona-lobes, particularly as regards the long filiform nature of the inner corona-lobes. The chief points of dissimilarity are the shape of the corolla-lobes, the prominent tube and the absence of ciliation in *S. dwequensis*.

38. *Stapelia erectiflora* N. E. Brown, Gard. Chron., vi. 650. 1889.

(Description by Dr. Brown, Flora Cap., iv. i. 971):

Stems: erect, decumbent at the base, 4 to 7 in. high, 4 to 5 lin. square, with concave-channeled sides and small teeth with erect rudimentary leaves about $\frac{1}{2}$ lin. long, puberulous, dull green;

Flowers: 1 to 4 (rarely more) in cymes with a short peduncle 1 to 3 lin. long; flowering all along the sides of the stems from base to apex, often with several cymes or fascicles of flowers on the same stem;

Pedicel: erect, 2 to 5 in. long, about 1 lin. thick at the base, slightly tapering upwards, puberulous, purplish;

Sepals: $1\frac{1}{2}$ lin. long, lanceolate, acute, puberulous;

Corolla: in bud, at first globose, ultimately broader than long, rather depressed, with a short blunt point; when expanded disk-like or somewhat resembling a Turk's cap, the lobes rolled back so closely as to entirely conceal the back of the flower and in this condition $4\frac{1}{2}$ to 5 lin. in diameter, purplish-grey, from short dense appressed pubescence of white hairs, on a smooth purple-brown ground; *lobes* about $2\frac{1}{2}$ lin. long, ovate, acute, without cilia other than the hairs on the inner surface;

Outer corona: lobes very spreading, with upcurved tips, $1\frac{3}{4}$ lin. long, $\frac{1}{2}$ lin. broad, linear, sub-obtuse, with 2 faint grooves down the face, brownish-red;

Inner corona: lobes 2 lin. long, subulate-filiform, quite simple, without a dorsal crest or horn, recurved-spreading, honey-yellow;

Type locality: Cape Prov.: Clanwilliam Distr.: Karroo, 6 miles beyond the Cederberg Mountains.

Distribution: Also near Clanwilliam, 500 ft. elevation.

The "erect-flowered *Stapelia*" was discovered by Thomas C. Bain about 1875 in the west coast region of the Cape Province, near the Cederberg Range, 100 miles north of Capetown. The stems are characteristic, with very rounded angles. The flowers are borne on long pedicels, 2 to 5 inches tall, and are remarkable because the corolla-lobes roll back, somewhat as in *S. revoluta*, but even more completely concealing the back of the corolla, which in this condition is a little under $\frac{1}{2}$ -inch in diameter and looks, according to Dr. Brown's description, like a Turk's cap. The corolla is densely pubescent with white hairs on a purple ground, making the flower look purplish-grey. The inner corona lobes consist of a single recurved-spreading horn, with no dorsal projection of any kind. Dr. Brown calls the plant the most profuse-flowering of the *Stapelias*, individual flowers remaining open from 8 to 14 days. They are nearly or quite odorless.

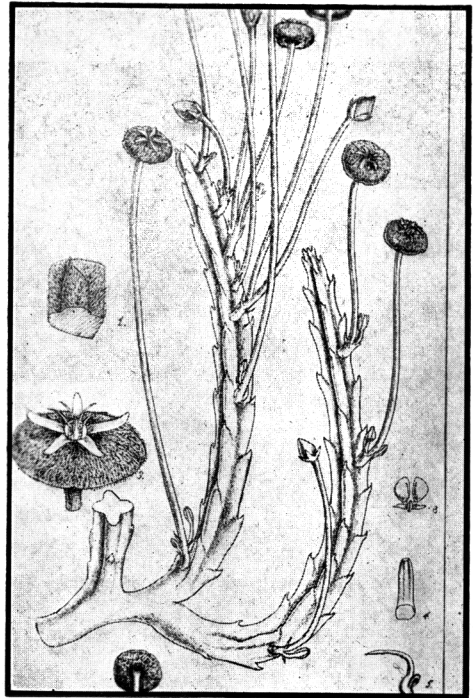


FIG. 453

Stapelia erectiflora N. E. Brown x 0.5

From Hooker's Icones Plantarum, 1890.

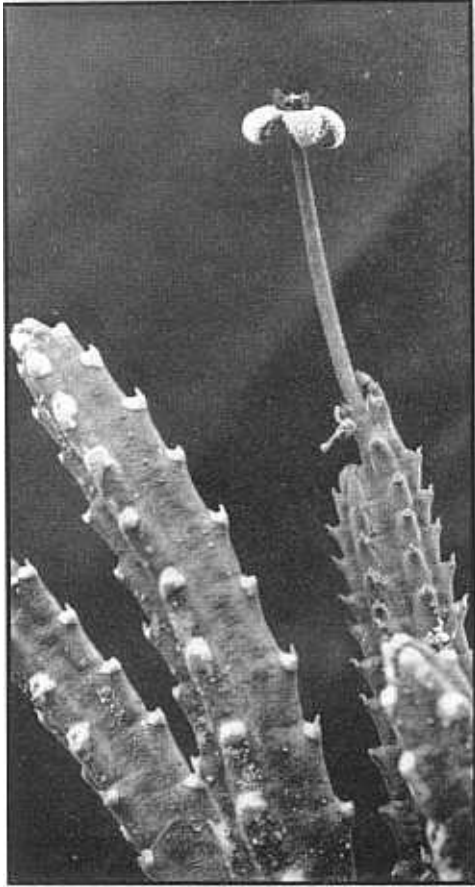


FIG. 454

Stapelia erectiflora N. E. Brown x 1.25

Photo by Carl Luckhoff of a plant from the
Bakhuis Mountains.

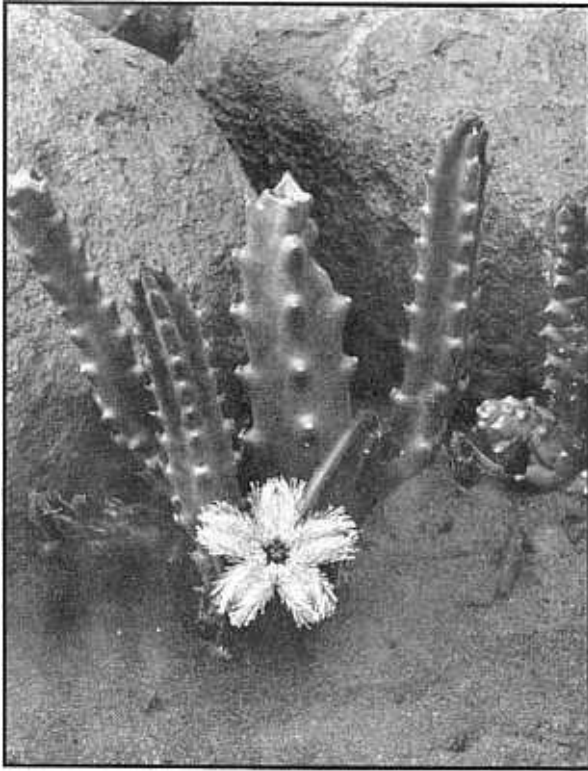


FIG. 455

Stapelia glanduliflora Masson x 0.75

Photo by S. Tapscott.

39. *Stapelia glanduliflora* Masson, Stap. Nov., 16. 1796.

Stapelia glandulifera Willdenow, Sp. Pl., i. 1284. 1797-1810.

Stapelia hispidula Hornemann, Hort. Hafn., i. 251. 1813.

Stapelia glanduliflora var. *massonii* Berger, Stap. und Klein., 289. 1910.

Stapelia glanduliflora var. *haworthii* Berger, Stap. und Klein., 289. 1910.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 967):

Stems: erect, 4 (rarely 5 to 6)-angled, 3 to 6½ in. high, ½ to ¾ in. thick, softly pubescent; angles somewhat compressed; teeth rather prominent, tipped with an erect or incurved rudimentary leaf ½ to 1 lin. long;

Flowers: 3 to 9 together, near the base of the young stems, successively developed;

Pedicel: 1½ to 3 in. long, ¾ lin. thick, pubescent, reddish;

Sepals: 1½ to 3 lin. long, lanceolate, acute, pubescent;

Corolla: in bud ovoid, shortly pointed; when expanded 1 to 1½ in. in diameter, flattish, minutely pubescent on the back, very slightly rugulose on the inner face and densely covered on the basal ⅓ to ½ of the lobes with long outstanding clavate stiff white hairs, and fringed all round with similar hairs, pale sulphur yellow, marked all over with numerous dots and fine interrupted transverse lines of purplish-red; lobes 5 to 7 lin. long, 3½ to 4 lin. broad, ovate-lanceolate, acute or acuminate, very spreading, with the tips recurved;

Outer corona: lobes 1 lin. long, ½ lin. broad, lanceolate, acute, yellowish or purplish-orange at the base, purplish-brown or orange-brown at the apex;

Inner corona: lobes 1 to 1½ lin. long, simple, subulate, without a dorsal gibbosity at the base, connivent-erect or crossing each other at the tips, dull yellowish, margined and dotted with red-brown.

Type locality: Cape Prov.: Clanwilliam Distr.: deserts near North Olifants River.

Distribution: Also from Clanwilliam Distr.: near Clanwilliam; Paleisheuvel; Van Rhynsdorp Distr.: Klaver.

Masson's "acorn-flowered *Stapelia*" is native to the dry areas near the west coast of the Cape Province, 100 miles or more above Capetown. Dr. Brown described the stems as "4 (rarely 5 to 6)-angled;" but we believe the 5 and 6-angled stems to be freak forms only, such as occur in many species of *Stapelias*. The flowers are sulphur-yellow inside, with lines and dots of purplish-red, slightly rugose and densely covered to the middle of the lobes with somewhat translucent stiff clavate white hairs, a rare feature, and the lobes are ciliate with similar hairs. The inner corona-lobes consist of a single horn, without any dorsal gibbosity at all.

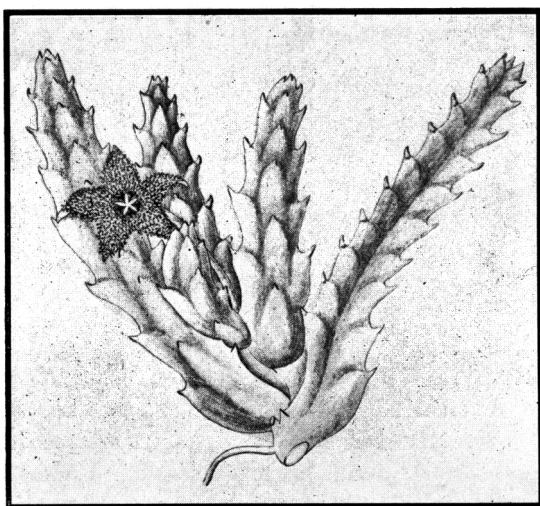


FIG. 456

Stapelia glanduliflora Masson x 0.5

From Masson: *Stapeliae Novae*, 1796.

Var. a. *Stapelia glanduliflora* var. *emarginata* N. E. Brown, *Flora Cap.*, iv. 968. 1909.

(Description by Dr. Brown, l.c.):

Outer corona: lobes oblong or rectangular, emarginate or shortly bifid at the apex; Otherwise as in the type.

Type locality: Cape Prov.: Clanwilliam Distr.: near Clanwilliam.

Distribution: Not otherwise known.

The "emarginate variety" differs from the type only in the form of the outer corona-lobes. Its habitat is the same as that of the type, and it is possible that the variation of the coronal form is not a constant one. The flowers of *S. glanduliflora* vary in numerous other particulars, the depth of tint of the ground color, the distinctness and intensity of color of the transverse markings, and the extent to which the

corolla is covered with clavate hairs. Berger described two additional varieties. One is the var. *massonii*, but as this is based on Masson's own figure, it must be interpreted as identical with the type, any apparent differences being due to the inaccuracies of the figure. The second, var. *haworthii*, is based on a description by Haworth, who may also have been misled by the inaccuracies of Masson's figure.



Stapelia glanduliflora Masson
 original drawing Miss Cynthia Letty
 Living Plants South Africa

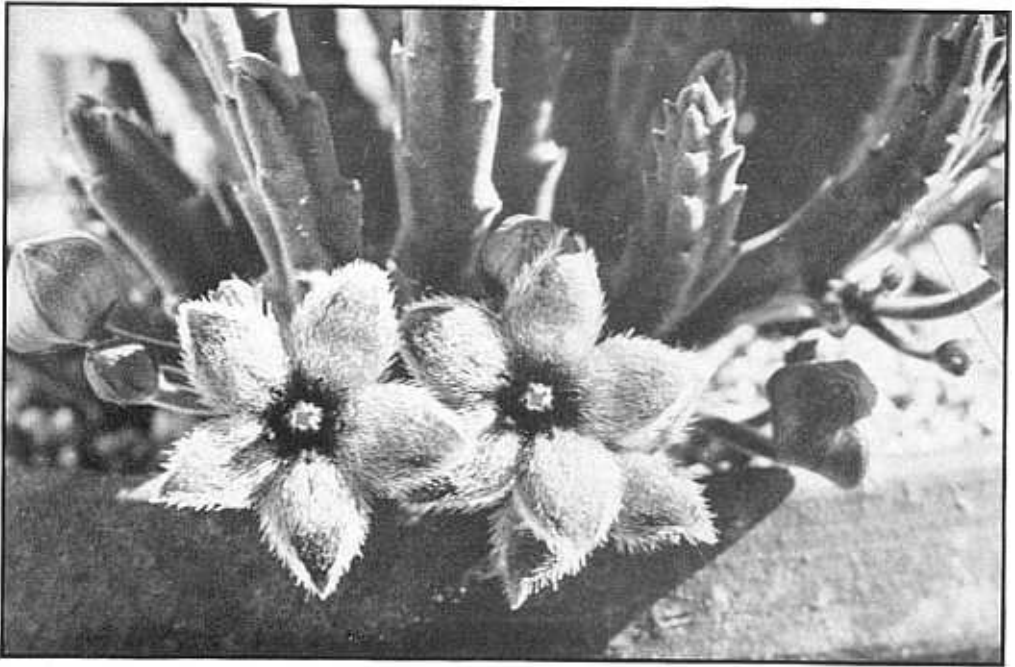


FIG. 457

Stapelia nouhuysii Phillips x 2.Photo by Carl Luckhoff, in *South African Gardening and Country Life*, 1934.40. *Stapelia nouhuysii* Phillips, *Flow. Pl. So. Afr.*, t. 345. 1929.

(Description by Dr. E. P. Phillips, l.c.):

Plant: spreading and rooting, forming a clump up to 30 cm. in diameter; *stems* up to 8 cm. long, 4-angled, with the angles raised into rounded ridges each of which ends in a small white tooth, glandular-pubescent;

Flowers: solitary or 2-nate, on short peduncles;

Pedicel: 2 to 2½ cm. long, terete, glandular-pubescent;

Sepals: 4½ mm. long, ovate, acuminate, acute, glandular-pubescent;

Corolla: in bud depressed-globose; 2 cm. in diameter when fully expanded; *tube* saucer-shaped, villous within, glabrous without; *lobes* 6 mm. long, 6 mm. broad at the base, ovate, sub-acuminate, densely villous on the lower half, glabrous on the upper half except for a marginal fringe of hairs, glabrous beneath;

Outer corona: lobes 3 mm. long, 1 mm. broad, oblong, obtuse;

Inner corona: lobes 3 mm. long, divided into two portions—an outer erect portion and an inner sickle-shaped portion inflexed over the staminal column.

Type locality: Cape Prov.: Clanwilliam Distr.: near Lambert's Bay.

Distribution: Not further recorded.

Dr. Phillips named this charming little *Stapelia* for J. J. van Nouhuys, who discovered it growing on a small outcrop of Table Mountain sandstone about 2 miles north of Jackal's River, between Lambert's Bay and van Puttensvlei. It is closely related to *Stapelia erectiflora*, which comes from the same region, but differs in not



having the corolla-lobes sharply reflexed and in the differently shaped corona, the lobes of the inner corona consisting of *two* horns, the inner one sickle-shaped and inflexed over the anthers, the outer one erect.

FIG. 458

Stapelia nouhuysii Phillips x 1.5

From the collection of David Pringle.

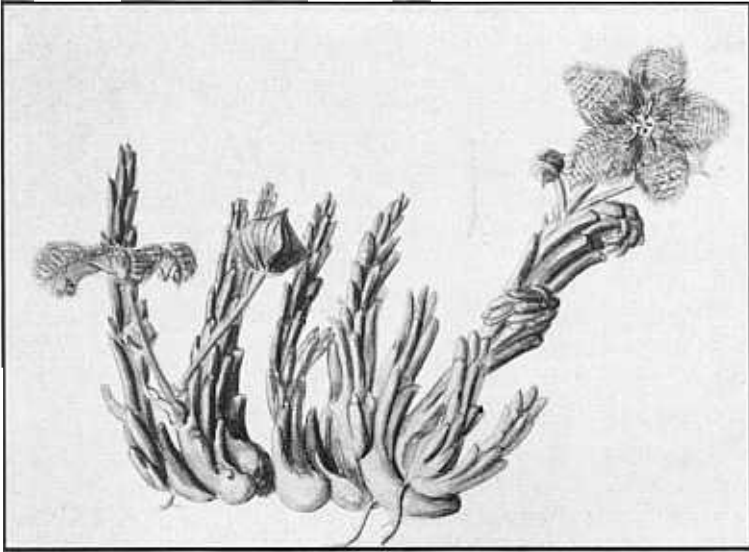


FIG. 459. *Stapelia nouhuysii* Phillips x 1.

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1929.



PLATE XIV.

Stapelia nouhuysii Phillips

From an original water color drawing
by Miss Cythna Letty.

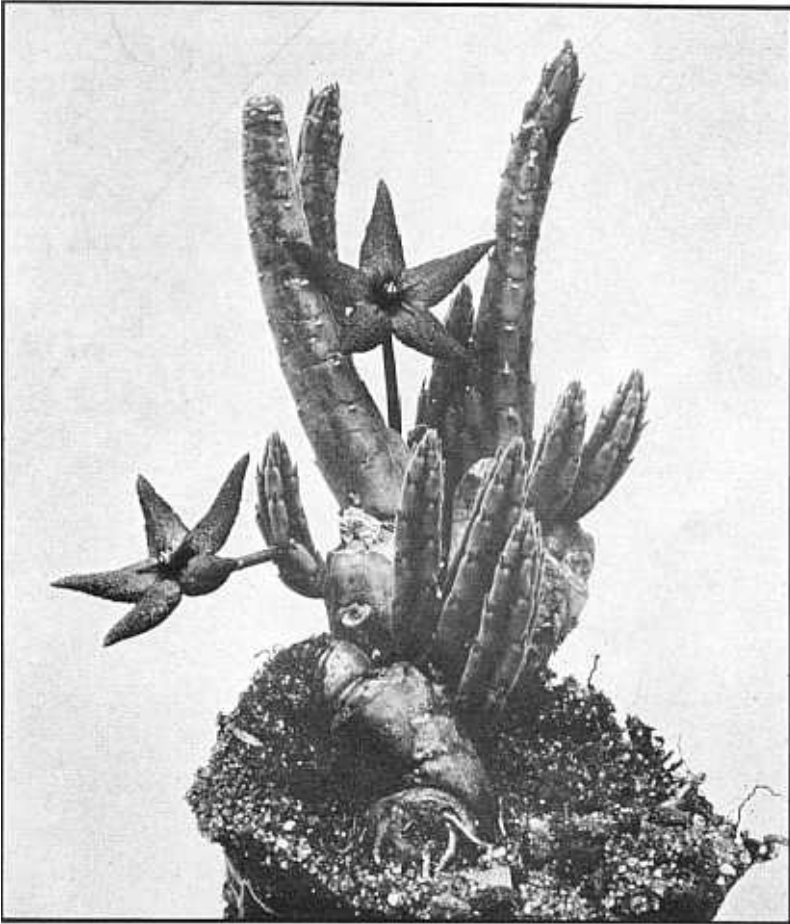


FIG. 460

Stapelia pearsonii N. E. Brown x 1.

Photo the type specimen, by C. P. Raffill, 1913. Reproduced by courtesy of the Royal Botanic Gardens, Kew.

41. *Stapelia pearsonii* N. E. Brown, Kew Bull., 304. 1913.

(Description by Dr. Brown, l.c., translated from the Latin):

Stems: erect, 4 to 8 cm. long, 6 to 12 mm. thick, obtusely 4-angled, with the sides flat or slightly concave, minutely puberulous, dull green or ashen-green, marbled with purple-brown; angles rounded, but hardly compressed or toothed; rudimentary leaves $\frac{3}{4}$ to 1 mm. long, deltoid, acute, erect;

Pedicel: $2\frac{1}{2}$ to $3\frac{1}{2}$ cm. long, minutely puberulous, purpled;

Sepals: 3 to 4 mm. long, narrowly deltoid-lanceolate, acute, minutely puberulous;

Corolla: $3\frac{1}{2}$ cm. in diameter; outside minutely puberulous, dull greenish, marked on the lobes with 3 purple nerves; inside glabrous, faintly rugose, wholly brownish-purple; *disk* nearly flat, 12 mm. in diameter; *lobes* stellately spreading, 14 mm. long, 6 to 8 mm. broad, lanceolate, acute, convex, with the margins recurved and not ciliate;

Outer corona: lobes 4 mm. long, narrowly linear, obtuse or acute, flat, outspread on the corolla-disk, dark purple, more or less shiny;

Inner corona: lobes 2-horned, dark purple; horns filiform; outer horn $2\frac{1}{2}$ mm. long, recurved
inner horn 4 mm. long, connivent at the base, recurved at the apex.

Type locality: South West Africa: Great Namaqualand: Great Karas Mountains.

Distribution: Not further known.

Discovered by Prof. H. H. W. Pearson, for whom it is named. He collected it in 1910 in Great Namaqualand, north of the Orange River, among rocks above the camel path between Narudas Sud and Krai Kluft at 4500 feet elevation in the Great Karas Mountains. The flowers differ from

those of both *Stapelia olivacea* and *S. similis* in having the inner corolla face much less rugose. They are about $1\frac{1}{2}$ inches in diameter. The color is uniformly brown-purple, while in *S. similis* it is described as being entirely blackish-purple.

Stapelia olivacea

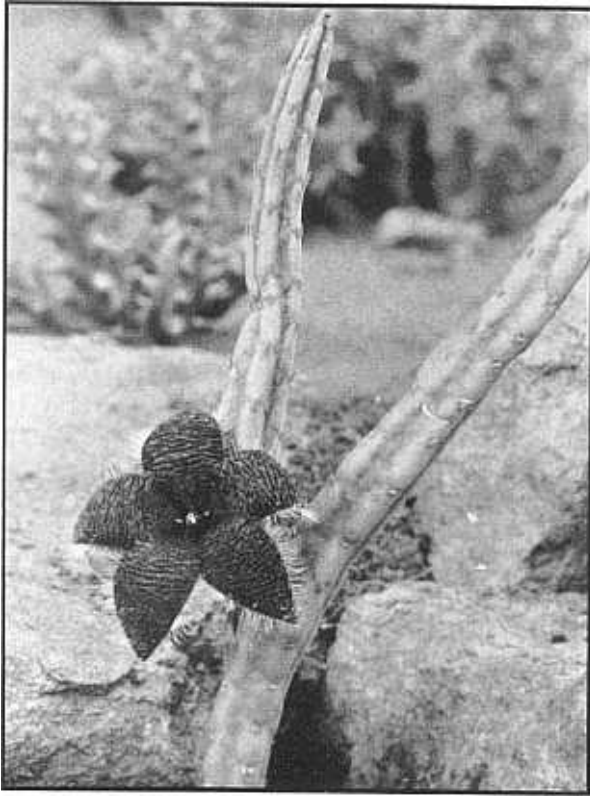


FIG. 461

Stapelia olivacea N. E. Brown x 1

Photo by S. Tapscott.

42. *Stapelia olivacea* N. E. Brown, Gard. Chron., iii. 136. 1875.

Stapelia cruciformis Hort., Gard. Chron., iii. 136. 1875.

(Description by Dr. Brown, Flora Cap., iv. i. 964):

Plant: rather compactly branched at the base; *stems* erect, 3 to 5 in. high, $\frac{3}{8}$ to $\frac{1}{2}$ in. square, very obtusely 4-angled, with the faces slightly grooved, not toothed on the angles, but with an impressed transverse line at the base of the erect $\frac{1}{2}$ to $\frac{3}{4}$ lin.-long rudimentary leaves, minutely puberulous, very smooth-looking, greyish-green, with the grooves and impressed lines darker, usually blotched with purple where exposed to the sun;

Flowers: 2 to 6 together at the base of the young stems;

Pedicel: 2 to 3 (in fruit 6 to 8) lin. long, puberulous;

Sepals: 2 to $2\frac{1}{2}$ lin. long, lanceolate-subulate, puberulous;

Corolla: in bud ovoid, subobtusely; when expanded $1\frac{1}{4}$ to $1\frac{3}{4}$ in. in diameter, with very spreading or slightly recurved lobes 5 to 7 lin. long, 4 to 5 lin. broad, ovate, acute, puberulous and dull green on the back, inner face deeply and closely rugose, glabrous, ciliate with white simple hairs, varying from pale olive to dark olive-green with the rugosities brown, or sometimes entirely dull brownish-red;

Outer corona: lobes ascending-spreading, 1 to $1\frac{1}{2}$ lin. long, narrowly deltoid-subulate, acute, dark purple-brown, with a smooth polished central stripe from the base to the middle;

Inner corona: lobes 2-horned, dark purple-brown; inner horn 2 to $2\frac{1}{2}$ lin. long, erect or very

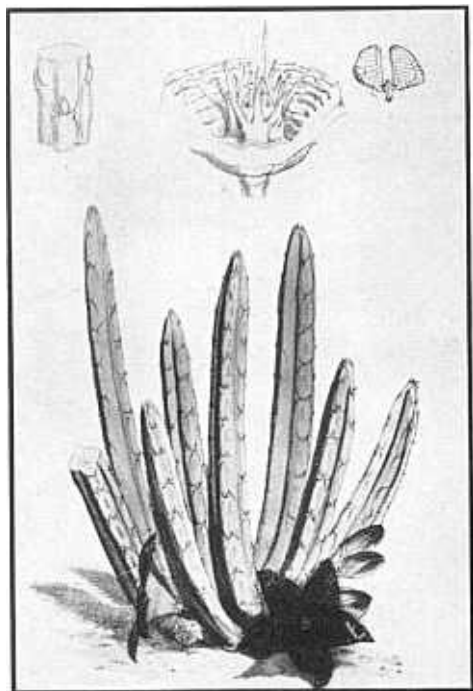


FIG. 462

Stapelia olivacea N. E. Brown x 0.5

From a drawing by W. H. Fitch, in Curtis's Botanical Magazine, 1875.



FIG. 463

Stapelia olivacea N. E. Brown x 1.6

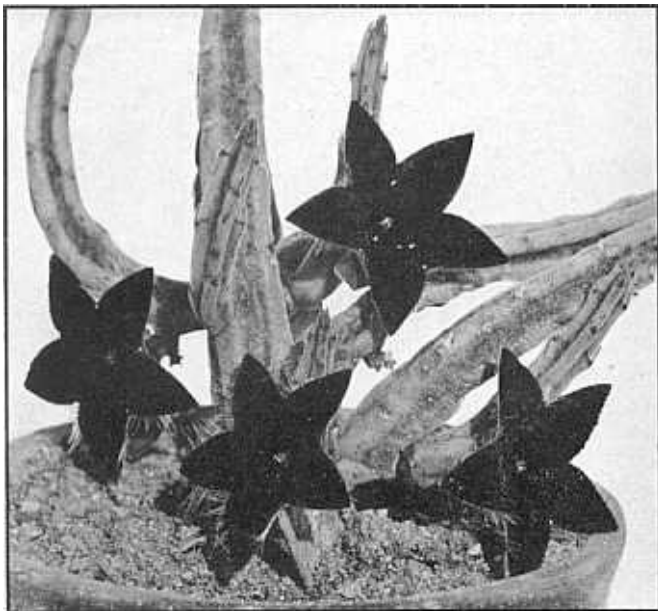


FIG. 464

Stapelia olivacea N. E. Brown x 1.

Photo by A. Probst and E. R. Svensson.

slightly recurving, slenderly filiform; outer horn erectly recurved, $\frac{3}{4}$ to $1\frac{1}{2}$ lin. long, falcately subulate, laterally compressed;

Follicles: $3\frac{1}{2}$ to 4 in. long, about $\frac{1}{4}$ in. thick, narrowly fusiform, acute, puberulous.

Type locality: Cape Prov.: Karroo, without precise locality.

Distribution: Recorded from Prince Albert; Beaufort West; Richmond; Cradock; Middelburg; Philipstown; Colesberg; Tarka; Venterstad; and Prieska districts; Griqualand West: Hay district; Orange Free State: Philippolis and Fauresmith districts.

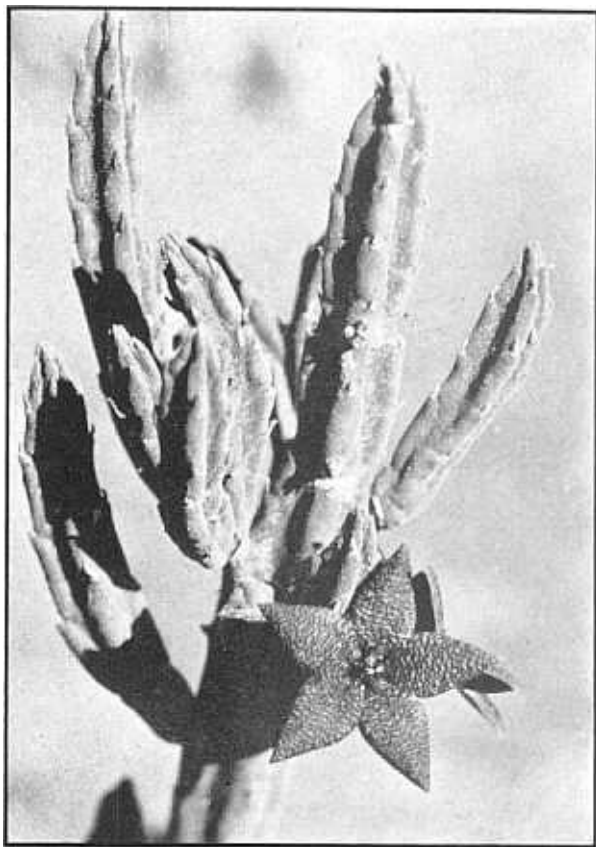


FIG. 465

Stapelia olivacea N. E. Brown x 1.

From the Kaap Plateau, Griqualand West. Photo by S. Tapscott. Identification uncertain. The stems and habit resemble the type, but the corolla-lobes are lighter in color and devoid of ciliation.

Stapelia olivacea was introduced to the Royal Botanic Gardens at Kew in 1874 by Sir Henry Barkly, who had found it "common throughout the Karroo." Next to *S. flavirostris* it is the most frequent *Stapelia* in the north-central parts of the Cape Province, extending to the south-west corner of the Orange Free State. There is a legend that it was first collected on the farm of Olive Schreiner, the novelist, in the Cradock district, and named in her honor;

more probably the name refers simply to the frequent olive-green color of the flowers. The color of the flowers is rather variable, from a pale olive with red-brown transverse lines on the rugosities, to a uniformly dull brownish-red. They have a strong fetid odor. The stems are obtusely angled and without teeth, with an impressed line across the base of the little erect rudimentary leaves. They appear quite smooth, but are minutely puberulous.

43. *Stapelia albo-castanea* Marloth, Trans. Roy. Soc. So. Afr., iii. 124. 1913.*Stapelia caroli-schmidtii* Dinter et Berger, Engler: Jahrb. Suppl., 592. 1914.

(Description by Dr. R. Marloth, l.c., in part translated from the Latin):

Plant: low, branching; *stems* 6 to 8 cm. long, curving upwards, glabrous, nearly quadratic; the sides 12 to 14 mm. broad excluding the teeth, dull green mottled with dull red spots; teeth 3 to 5 mm. long;

Flowers: 3 to 6, from the middle portions of the stems, opening in succession;

Pedicels: jointed at the base and forming a common peduncle, 4 to 6 cm. long, curving upwards;

Sepals: ovate and acuminate;

Corolla: $2\frac{1}{2}$ cm. in diameter, with a very shallow cup, which slightly exceeds the sepals, the tubular portion 8 mm. in diameter; *lobes* 10 to 11 mm. long, 5 mm. broad at the base, subacute, finally recurved, ciliate with clavate hairs: inner surface coarsely rugose, nearly white, spotted all over with purple-brown, the spots around the corona smaller than the rest;

Outer corona: lobes 2 mm. long, $1\frac{1}{2}$ mm. broad, linear, recurved-spreading, appressed to the corolla, not tapering, convexly curved on the upper side, the apex deeply notched, entirely dark brown;

Inner corona: lobes 4 to 5 mm. high, about 4 times as long as the anthers, subulate-filiform, acute, connivent-erect and more or less spreading at the tips, with a long dorsal acute horn from its base, entirely brown, or whitish at the tips.

Type locality: South West Africa: Great Namaqualand: near Maltahöhe.

Distribution: Also at Bull's Poort Plain; and near Kanus and Narudas Sud on the southerly edge of the Great Karas Mountains.

This charming *Stapelia* was collected by Prof. Dinter in Great Namaqualand, a little below the tropic, on April 4, 1911, and it appears to have been collected also by Dr. Marloth in the same year, for he wrote that it flowered in his garden at Capetown in Feb., 1912. Dr. Marloth published a description of the species a year before Berger and Dinter did so independently. The name, "white-and-chestnut *Stapelia*," comes from the color of the inner corolla face, which is usually whitish spotted all over with purple brown. "On one of my plants, among a collection of eight," wrote Dr. Marloth, "the ground color was not pure white, but creamy." The corolla is rugose and glabrous, the lobes ciliate with blackish-red hairs 3 to 4 mm. long. The corolla-lobes are said to be longer proportionately than those of *S. jucunda*, which the plant otherwise very much resembles. The corona, too, differs in that the inner corona-lobes have a long secondary dorsal horn. The plant is a very free grower. Three or four stems, in a single summer,



FIG. 466. *Stapelia albo-castanea* Marloth x 1. Photo by Prof. Dinter in Neue Pfl. D. S.-W. Afr., 1914. will send out shoots in all directions which root as they go and cover an area of a square foot or more.



PLATE XV.
Apelia exlista Luckhoff
drawing by Carl Luckhoff

44. *Stapelia cylista* Luckhoff, So. Afr. Gard., xxiii. 139. 1933.

(Description by C. Luckhoff, l.c.):

Stems: erect, decumbent and branching at the base, 14 to 24 cm. high, 13 mm. thick, 4-angled, deeply concave between the angles, which are raised into obtusely rounded ridges, each of which ends in an inconspicuous tooth and acute rudimentary leaf, velvety-puberulous, bright green;

Flowers: solitary, arising from short peduncles near the base of the young stems;

*Pedice*l: 3 cm. long, 6 to 7 mm. thick, terete, pubescent;

Sepals: 1½ cm. long, 5 mm. broad at base, ovate-lanceolate, pubescent;

Corolla: 20 cm. in diameter when expanded, lobed to ⅔ of the way down, united portion chalice-shaped, 6 cm. in diameter at the mouth, thence gradually tapering to the small rounded base, outside bright purple-brown, obscurely nerved on the lobes, minutely puberulous, inside ochre-yellow, marked everywhere with close-set, broken, transverse, dull red, raised lines, covered to the tips of the lobes with light purple hairs; lobes 8½ cm. long, 3½ cm. broad, acuminate, usually flaccid and drooping, not ciliate;

Outer corona: lobes ascending, with recurved tips, 6 mm. long, 1½ mm. broad, 3-toothed at the apex, concave down the inner face, dark purple-brown;

Inner corona: lobes dark purple-brown, with the dorsal wing free to the base, 9 mm. long, truncate or wing-like, obscurely toothed near the apex, inner horn directly ascending, 12 mm. long, linear, with recurved tip.

Type locality: Cape Prov.: Van Rhynsdorp Distr.: near Klaver.

Distribution: Not further known.

The "chalice-shaped *Stapelia*" was discovered in Dec., 1928, by Messrs. Hurling and Neil, of the Highlands Rockeries Nursery in Bonnie Vale. They found the plant in the Klaver area, near the Olifants River, about 20 miles south of Van Rhynsdorp, during a botanizing trip through the northern portions of the Cape Province. The species is related to *Stapelia nobilis*, but differs alike in stems and flowers. The velvety stems are longer and slenderer, 6 to 10 inches tall and only half an inch thick, deeply concave between the angles, which are raised into rounded ridges. The 8-inch flowers have the united portion chalice-shaped, whence the name, from the Greek

word, "cylix," a chalice. The corolla is puberulous outside, exceptionally vivid purple-brown in color; inside ochreous-yellow, marked throughout with transverse dull red rugosities and covered to the tips of the lobes with light purple hairs. The tube is considerably deeper than in *S. nobilis* and 2½ inches wide at the mouth. The lobes are shorter, of a firmer texture and not ciliate, although their inner surface is hairy almost to the margins. The outer corona-lobes are 3-toothed, as in *S. gigantea* and *S. nobilis*; those of the inner corona have a broad wing, free to the base, very obscurely toothed at the apex.

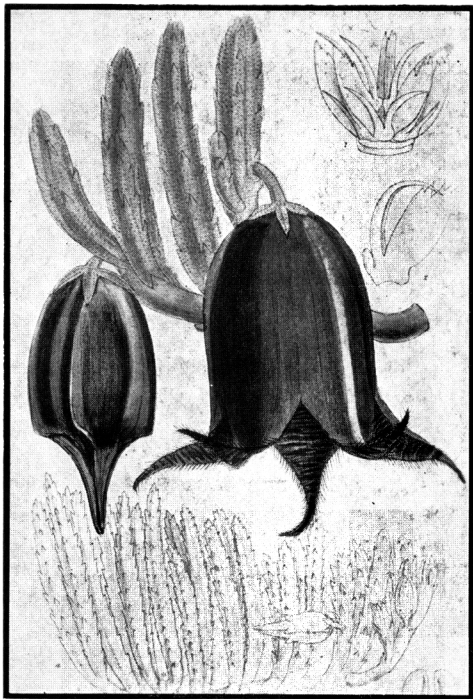


FIG. 467

Stapelia leendertziae N. E. Brown x 0.5

From a drawing by Miss Matilda Smith, in Curtis's Botanical Magazine, 1914.

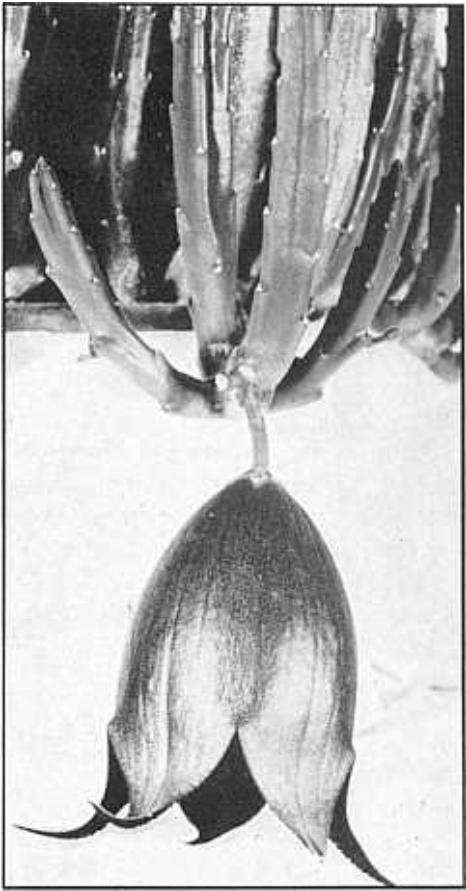


FIG. 468

Stapelia leendertziae N. E. Brown x 0.75



FIG. 469

Stapelia leendertziae N. E. Brown x 0.3

From Pretoria district. Photo: G. W. Reynolds, Johannesburg.

45. *Stapelia leendertziae* N. E. Brown, Ann. Transv. Mus., ii. 168. 1910.

(Description by Dr. Brown, l.c.):

Habit: somewhat lax, with erect stems, decumbent at the base, 3 to 4 in. high, $\frac{3}{8}$ to $\frac{1}{2}$ in. square, with slightly concave sides, toothed at the angles, velvety-puberulous, flowering near the middle and usually branching near the place of flowering; teeth not very prominent, tipped with a minute rudimentary leaf $\frac{1}{2}$ to $\frac{3}{4}$ lin. long;

Flowers: usually 2 together, sometimes solitary;

*Pedice*l: $\frac{3}{4}$ to 1 in. long, 2 to $2\frac{1}{2}$ lin. thick, velvety-puberulous;

Sepals: 4 to $4\frac{1}{2}$ lin. long, $1\frac{3}{4}$ to 2 lin. broad, lanceolate or ovate-lanceolate, acute, velvety-puberulous;

Corolla: with a large cup-shaped tube and spreading lobes, puberulous all over the outside, inner surface everywhere rugose with very prominent transverse ridges, thinly covered with long dark purple hairs on the lower half of the cup, glabrous on the upper half and lobes, dark brownish-purple or blackish-purple; tube about 3 in. long, 3 to 4 in. in diameter at the mouth; lobes $2\frac{1}{4}$ to $2\frac{1}{2}$ in. long, about $1\frac{1}{2}$ in. broad at the base, whence they taper in a nearly straight line to the acute apex, not ciliate;

Outer corona: lobes about 2 lin. long, suberect, divided to below the middle into two subulate erectly-divergent acute segments, with or without a minute tooth in the notch between them, glabrous, purple-brown;

Inner corona: lobes erect, glabrous, blackish-purple, divided to the base into an outer oblong wing 3 lin. long and 2 lin. broad, irregularly toothed at the top, and an inner triquetrous-subulate horn slightly longer than the wing and slightly recurving over it;

Follicles: erect, parallel, $4\frac{1}{2}$ to $5\frac{1}{2}$ in. long, about $\frac{2}{3}$ in. thick, fusiform, softly puberulous, mottled with dark green or dull purple on a lighter ground.

Type locality: Transvaal: Heidelberg Distr.: near Heidelberg.

Distribution: Also in Barberton Distr.: near Komatipoort; Johannesburg Distr.



FIG. 470

Stapelia leendertziae
N. E. Brown

Identification uncertain, as the flowers are darker than in the type. Photo by W. Triebner, from a plant collected near Stolzenfels, Great Namaqualand. *S. leendertziae* has not otherwise been found in South West Africa.

Stapelia leendertziae is named for its discoverer, Miss Reino Leendertz (now Mrs. R. Leendertz Pott), who met with it in November, 1909, growing among the rocks near Heidelberg in the Transvaal. The plant grows in large patches in sunny spots on rocks, flowering freely at the beginning of the year.

The 6-inch stems have deeply compressed angles, branching readily. The corolla of the flowers is remarkable for its bell-shaped tube, much more dominating than that of *S. nobilis*. It is about $2\frac{1}{2}$ inches deep and

2 inches in diameter, the lobes continuing $1\frac{1}{2}$ inches beyond the mouth of the tube, somewhat spreading. The color is a uniform rich fuscous-purple. The corolla is shortly pubescent outside, covered with long purple hairs on the lower inner half of the tube, the lobes not ciliate. Often the flowers hang straight down from the stems and then they appear so bell-like that one half expects to hear them start ringing in the wind. But this is only a fancy, and the only message they ever broadcast is a very disagreeable odor!

46. *Stapelia wilmaniae* Luckhoff, So. Afr. Gard., xxiii. 139. 1933.

(Description by C. Luckhoff, l.c.):

Plant: spreading, forming clumps up to 30 cm. in diameter; *stems* erect, 9 to 18 cm. long, 12 mm. thick, 4-angled, with the angles raised into rounded ridges, each of which terminates in an inconspicuous tooth, surmounted by a small rudimentary leaf, pubescent, light green;

Flowers: solitary or in pairs, arising from short peduncles;

*Pedice*l: 2½ to 3 cm. long, terete, densely pubescent;

Sepals: 13 mm. long, ovate-lanceolate, pubescent;

Corolla: cup-shaped, united portion 6½ cm. long, 6 cm. in diameter, somewhat spherical, deep maroon on the puberulous outside, inside everywhere rugose with close-set prominent ridges, deep violet-crimson, the ridges almost black, densely covered with long soft purple hairs in the lower third of the tube; *lobes* usually diverging, 3 cm. long, 3½ cm. wide at the base, thence tapering acutely to the narrow acuminate tips, ciliate on the basal third with short in-turned dark hairs;

Outer corona: lobes suberect, segments 2, free almost to the base, diverging, narrow, flattened, 4 to 5 mm. long, deep brown;

Inner corona: lobes 9 mm. long, 2-horned; outer horn extended into a wing-like expansion, obscurely toothed along its upper margin; inner horn linear, following the contour of, and shorter or longer than, the outer horn, deep brown.

Type locality: Transvaal: Barberton Distr.?: near Barberton?

Distribution: Not further known.

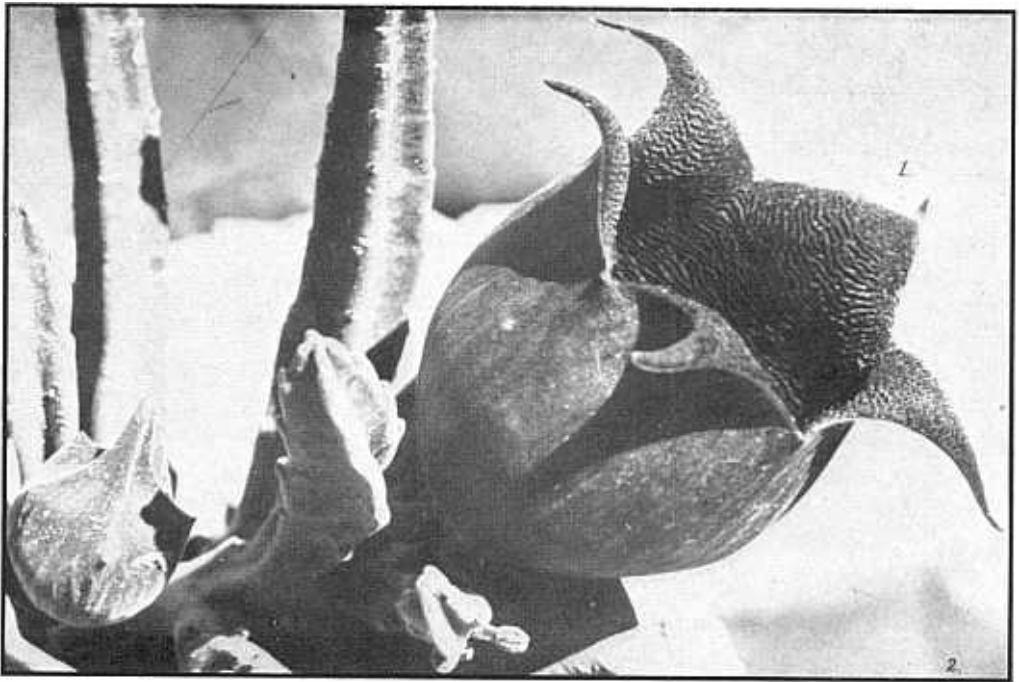


FIG. 471

Stapelia wilmaniae Luckhoff x 1.

Photo by Carl Luckhoff, in South African Gardening and Country Life, 1933.

Prior to 1897 it was believed that all the members of the genus *Stapelia* had flowers with the corolla either quite flat or very slightly saucer-shaped. The discovery during the past 40 years of *S. nobilis*, *S. cylista*, *S. leendertziae* and *S. wilmaniae* has established a group of large-flowered species with prominent corolla-tubes of strikingly varied character. That of *S. wilmaniae* is the largest and most inflated, and hence the most nearly spherical, of them all, $2\frac{1}{2}$ inches deep and $2\frac{1}{4}$ inches in diameter, with tapering lobes spreading out another inch and a quarter beyond its mouth.

In several respects *S. wilmaniae* is closely similar to *S. leendertziae*, but the corolla-tube is less hairy and of a richer color, and the corolla-lobes are ciliate at the basal part, whereas in *S. leendertziae* they are entirely glabrous. "The spherical globe of *S. wilmaniae*," says Mr. Luckhoff, "is in marked contrast to the long trumpet of *S. leendertziae*; but there is no doubt that the two species are nearly related and, when one is confronted by a flowering plant in a garden, it is sometimes difficult to tell to which it belongs. I contend that the original Barberton *S. wilmaniae* is wholly distinct from *S. leendertziae*, but that the two are connected by a chain of natural varieties or veld hybrids. I have never seen the huge size nor the typical shape of the original flowers of *S. wilmaniae* equaled on any other plant."

The close relationship of the two sister plants is happily commemorated by their dedication to two prominent South African

scientists. Mrs. Leendertz Pott was long Botanical Assistant at the Transvaal Museum in Pretoria, and Miss M. Wilman is Curator of the McGregor Museum in



FIG. 472

Stapelia wilmaniae Luckhoff x 1.

Courtesy Cape Times.

Kimberley. *S. wilmaniae* was described by Mr. Luckhoff from a plant contributed by Miss Wilman, though the actual discoverer remains unknown. It is believed to have been collected near Barberton, Transvaal, about the beginning of 1932, but the record has not been definitely verified.

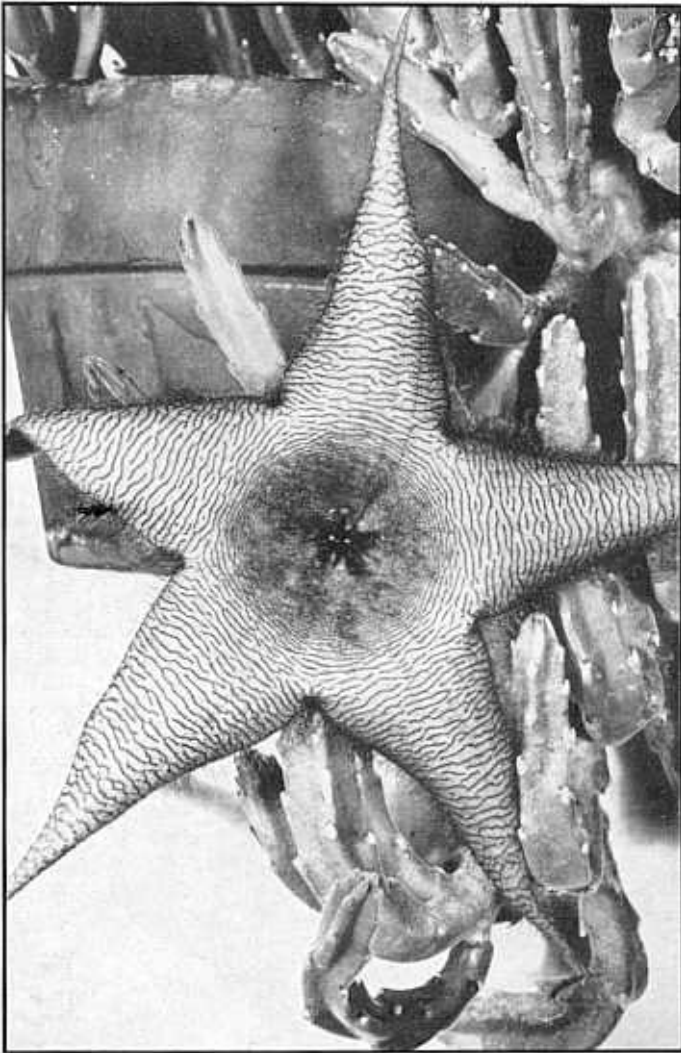


FIG. 473

Stapelia nobilis N. E. Brown x 0.5

47. *Stapelia nobilis* N. E. Brown, Bot. Mag., t. 7771. 1901.

(Description by Dr. Brown, Flora Cap., iv. i. 949) :

Stems: erect, decumbent and branching at the base, 3 to 5 in. long, 5 to 10 lin. square with concave sides, softly pubescent, green; angles slightly compressed, with erect rudimentary leaves 1 lin. long at the teeth;

Flowers: 1 to 5 together, near the base or middle of the young branches, successively developed;

Pedicel: stout, 1 in. long, $2\frac{1}{4}$ lin. thick, velvety;

Sepals: $3\frac{1}{2}$ to 4 lin. long, $1\frac{1}{2}$ to $1\frac{3}{4}$ lin. broad, ovate-lanceolate, acute, velvety;

Corolla: very large; in bud ovoid, acuminate, with 5 projecting teeth below the middle; when expanded 5-lobed to $\frac{2}{3}$ of the way down, the united part forming a distinct campanulate tube about $1\frac{1}{6}$ in. deep, $1\frac{1}{2}$ in. in diameter; lobes $2\frac{3}{4}$ to 4 in. long, $1\frac{1}{4}$ to 2 in. broad, ovate-lanceolate, acuminate, reflexed, puberulous and light reddish-purple on the back; inner face

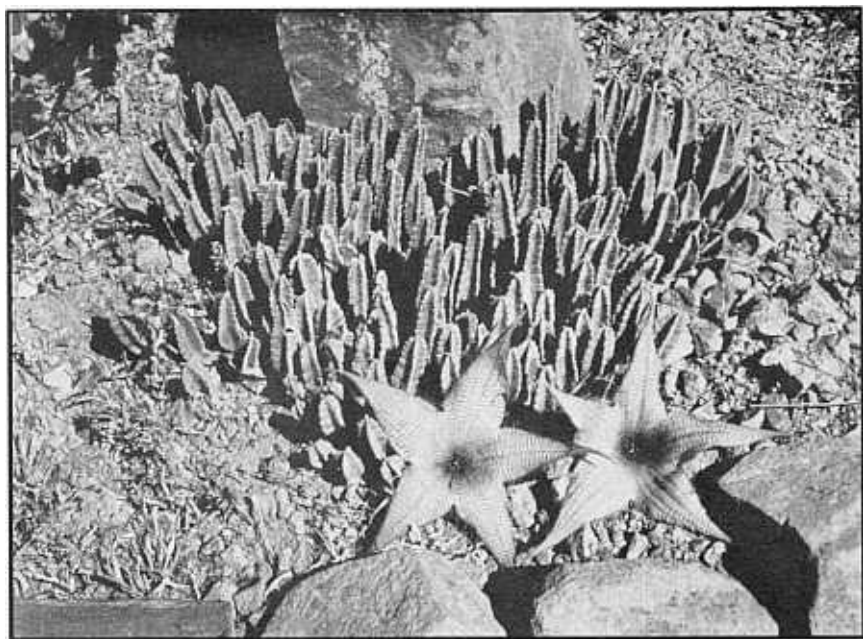


FIG. 474

Stapelia nobilis N. E. Brown
In the rockery of J. C. J. Knobel in
Zeerust. Photo: G. W. Reynolds,
Johannesburg.

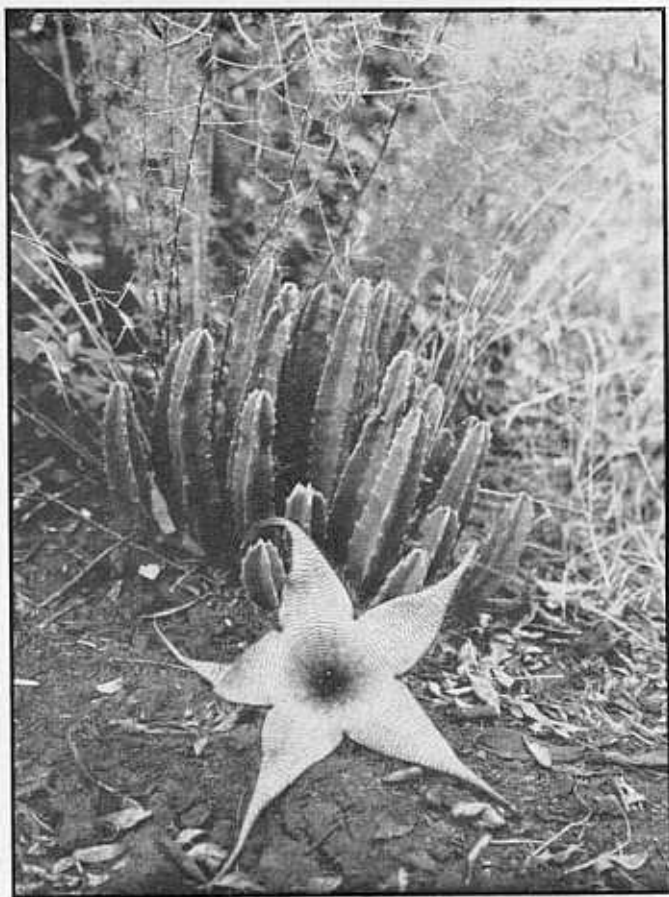


FIG. 475

Stapelia nobilis N. E. Brown
In natural surroundings, 22 miles
north of Zeerust. Photo: G. W.
Reynolds.

transversely rugulose, light ochreous yellow, everywhere marked with irregular transverse crimson lines and somewhat thinly covered with very fine long erect purple hairs, ciliate on the lobes with rather stouter simple purple hairs;

Outer corona: lobes ascending, 3 lin. long, $\frac{2}{3}$ lin. broad, linear, 3-toothed at the apex, concave down the face, glabrous, purple-brown;

Inner corona: lobes dark purple-brown, with the dorsal wing free to the base, erect and parallel with the inner horn, $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. long, $\frac{3}{4}$ to $1\frac{1}{2}$ lin. broad, narrowly oblong or oblong-lanceolate, acute or obtuse, entire or denticulate at the upper part; inner horn 3 to 5 lin. long, subulate, triquetrous, erect, with slightly incurved tips, not contiguous at the middle part.

Type locality: Unknown.

Distribution: Transvaal: Zoutpansberg Distr.: both north and south slopes of the Zoutpansberg; Pietersburg Distr.: Pietersburg Town Commonage; Potgietersrust Distr.:

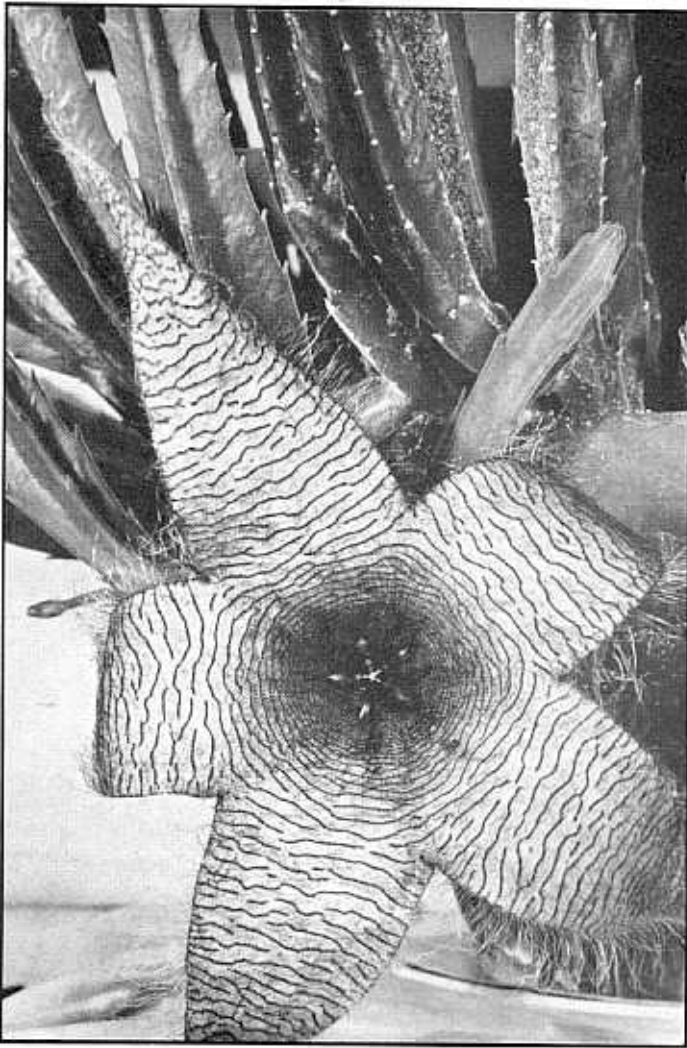


FIG. 476

Stapelia nobilis N. E. Brown x 0.5

south of Potgietersrust; Waterberg Distr.: from Nylstroom to Naboomspruit; Zee-rust Distr.: plentiful at Sefton's Nek; Groot Marico; etc.; Pretoria Distr.: near Harte-beestpoort Dam; and on rocky hillsides of the Magaliesberg range; Lydenburg Distr.: Sekukuniland; Johannesburg Distr.: on kopjes; Heidelberg Distr.: near Heidelberg; ?Natal: Drakensberg range; ?Portuguese East Africa: Mangulane.

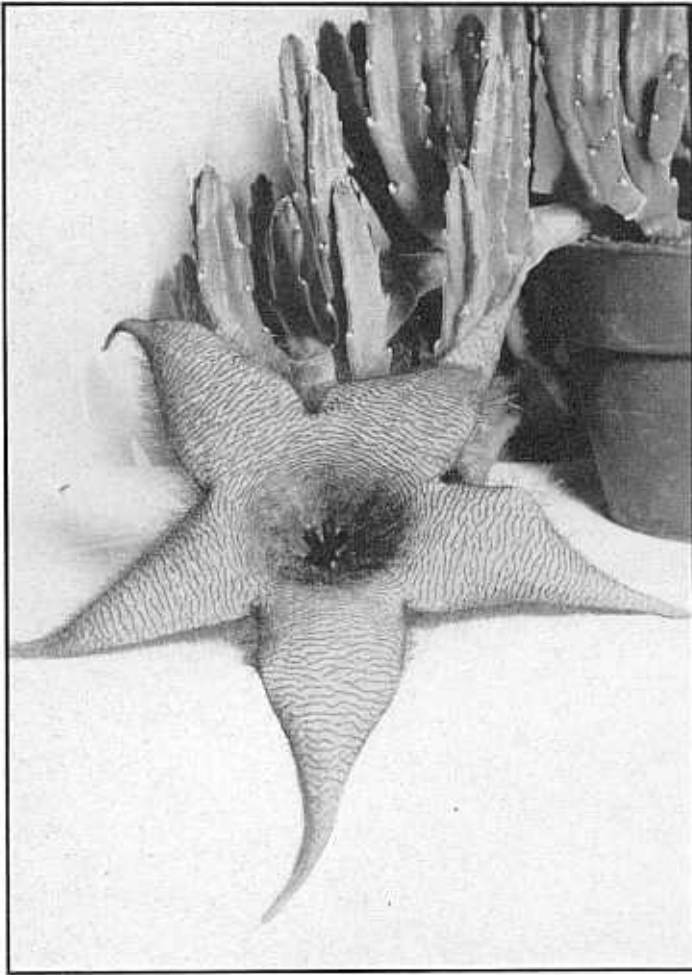


FIG. 477

Stapelia nobilis N. E. Brown x 0.3

The discoverer of the "noble *Stapelia*" is not known. It was first introduced to the Royal Botanic Gardens, Kew, in 1897. It is a gorgeous species from the Transvaal and perhaps from Natal and Portuguese East Africa, with a wide range both within and below the Tropic. We have discussed its main characters, in speaking of *S. gigantea*.

48. *Stapelia gigantea* N. E. Brown, Gard. Chron., vii. 684. 1877.

(Description by Dr. Brown, Flora Cap., iv. i. 948):

Stems: erect, branching and shortly decumbent at the base, 4 to 8 in. long, $\frac{3}{4}$ to $1\frac{1}{4}$ in. square, pubescent, light dull green; angles much compressed, with erect rudimentary leaves 1 to $1\frac{1}{2}$ lin. long on the small teeth;

Flowers: 1 to 2 together, near the base or towards the middle of the stems;

*Pedice*l: about 2 in. long, $2\frac{1}{2}$ lin. (in fruit about $\frac{1}{2}$ in.) thick, softly pubescent;

Sepals: 4 to 5 lin. long, lanceolate, acuminate, pubescent;

Corolla: very large; in bud pentagonally ovoid, acuminate; when expanded 11 to 16 in. in diameter, with the united part disk-like, shallowly depressed at the centre; back pubescent; inner surface transversely rugulose and thinly covered all over with long fine erect pale purplish hairs and ciliate with similar but longer hairs, light ochreous-yellow, everywhere marked with transverse crimson lines; lobes 4 to $6\frac{1}{4}$ in. long, 2 to $2\frac{3}{4}$ in. broad, ovate-lanceolate, acuminate, very spreading or recurved, slightly convex, scarcely revolute at the margins;

Outer corona: lobes ascending-spreading, slightly recurved at the apex, $2\frac{1}{2}$ to 3 lin. long, $1\frac{1}{4}$ lin. broad, oblong, slightly concave down the face, 3-toothed at the apex, with the middle tooth subulate, acute and longer than the obtuse side teeth, glabrous, dark purple-brown;

Inner corona: lobes dark purple-brown, with the dorsal wing free to the base, ascending, 2 to 3 lin. long, 1 to $1\frac{1}{2}$ lin. broad, oblong or subdeltoid-oblong, obtuse or acute, entire; inner horn 2 to 3 lin. long, erect, subulate, rather obtuse, nearly straight;

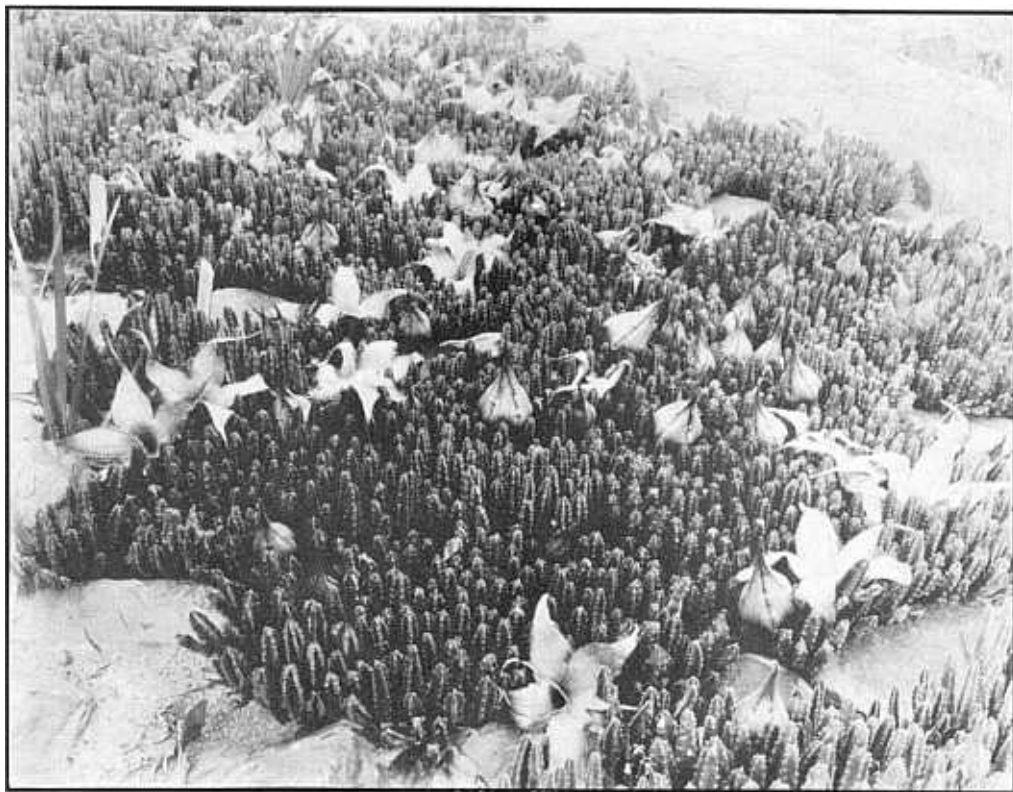


FIG. 478

Stapelia gigantea N. E. Brown

Photo by C. A. Smith.

Follicles: slightly diverging, 5 to 6½ in. long, ⅔ in. thick, subterete, tapering to an obtuse hooked apex, pubescent.

Type locality: Natal: Zululand: without precise locality.

Distribution: (Some of the records may refer to *Stapelia nobilis*): Natal: Zululand: Umfolosi River; Eshowe; Nkandhla; Transvaal: Barberton Distr.: Louws Creek; Zoutpansberg Distr.: on north slopes of the Zoutpansberg near Zoutpan; Southern Rhodesia: Matetsi; Northern Rhodesia: within 25 miles of Broken Hill.

The "Giant Stapelia" richly deserves its name, for it is not only the Titan among Stapeliads for the size of its flowers, but a serious contender for the honor of having the largest single flowers of any plant in the entire Plant Kingdom. Sir J. D. Hooker wrote of it in Curtis's Botanical Magazine: "*Stapelia gigantea*, some *Rafflesias* and certain species of *Aristolochia* are the largest-flowered members of the vegetable kingdom, and, what is curious, all are most fetid and have lurid colors. They agree in no other characters; and they inhabit widely distant parts of the world, namely, South Africa, Malaya and Brazil."

The flowers of *S. gigantea*, occasionally close upon a foot and a half in diameter, almost dwarf the plant stems, which grown out of doors are rarely eight inches tall. The face of the corolla is ochre-yellow, with fine transverse lines of crimson, the lines wider apart on the lobes of the corolla than at its centre. There is only a very shallow depression at the centre. The entire inner surface is thinly covered with pale

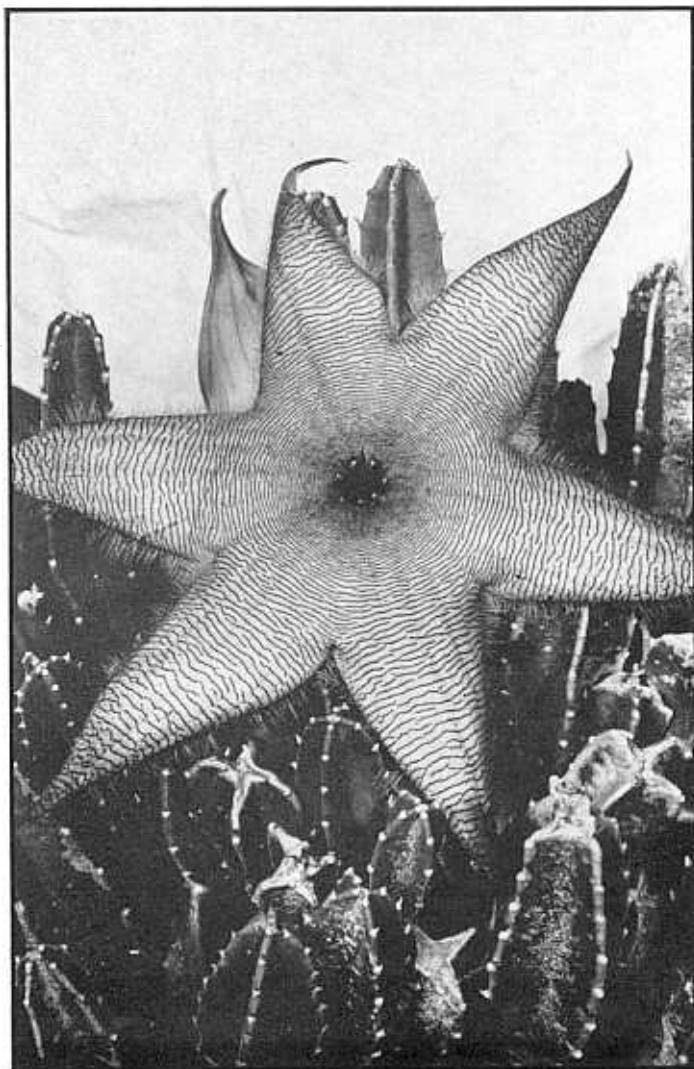


FIG. 479

A six-lobed flower of *Stapelia gigantea* N. E. Brown x 0.25

purple hairs, the lobes fringed with longer hairs of the same color. The outer corona-lobes are dark purple-brown, three-toothed at the apex; the inner corona-lobes consist

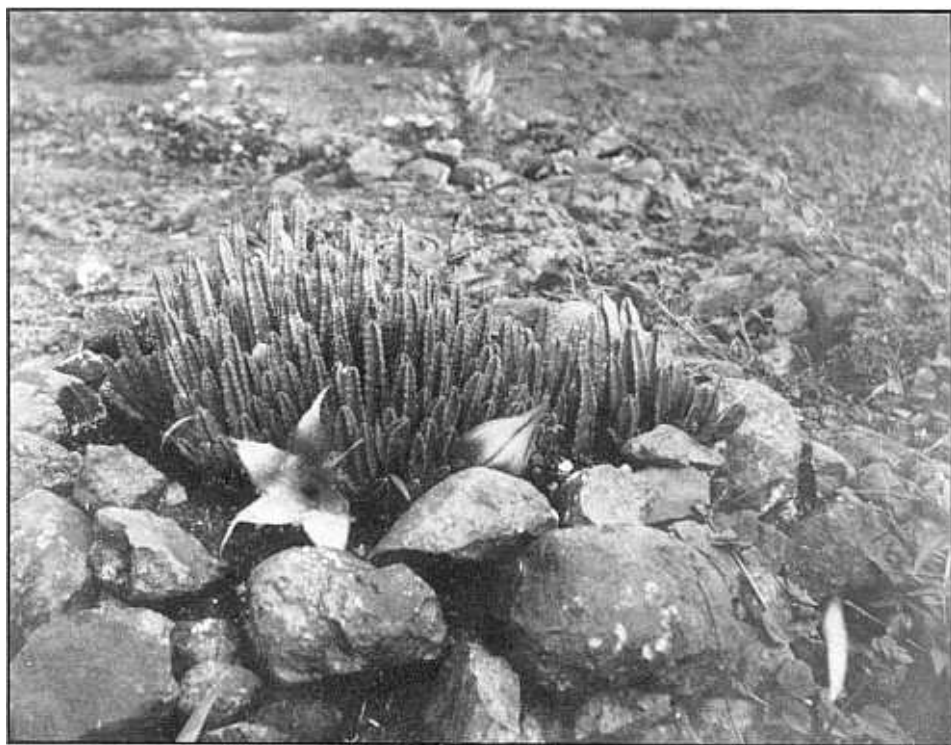


FIG. 480

Stapelia gigantea N. E. Brown

Photo by R. H. R. Stevenson of a plant from Matetsi, Southern Rhodesia.

of an erect horn with a large dorsal wing free to its base.

The distribution of *S. gigantea* is somewhat uncertain. Up to 1909 (Flora Capensis) it had been recorded only from Zululand, where it was discovered between 1850 and 1858 by R. W. Plant and later collected also by William Tyler Gerrard, near the Umfolosi River. It is not impossible that all specimens in cultivation in Europe and America as late as 1930 were direct descendants of the original collecting by Mr. Plant.

Recently new records of *S. gigantea* have begun to come in, from Zululand, the Transvaal and both Rhodesias. A correspondent in Southern Rhodesia says: "I believe there are at least four different forms of *S. gigantea* in this country." A study of the photographs received suggests

that *S. gigantea* loses its complete specific individuality in the var. *pallida* and in other forms probably of hybrid origin to emerge presently as the widely distributed *S. nobilis*.

The distinctions between the types of the two species are clear enough in living plants and flowers, but in dried material they are not always so easily recognizable. If *S. gigantea* is primarily a giant, *S. nobilis* is distinctly one of the nobility. The plant growth of *S. nobilis* is more compact than that of *S. gigantea*, the stems shorter, not so stout and the angles less markedly grooved. "*S. gigantea* is an untidier plant," writes Miss Verdoorn. "In a pot it always get a 'boiling over' look, as in Fig. 482, whereas *S. nobilis* has neat erect stems of about a uniform height and beautifully disposed flowers." In general the flowers

of *S. nobilis* are much smaller, averaging only 8 inches; but occasionally they rival those of the Giant. One measured by Dr. E. E. Galpin, growing wild in the Waterberg district of the Transvaal, was 15 5/8 inches from tip to tip. While similar in color, the flowers of *S. nobilis* are covered throughout the inner corolla surface with long purple hairs, more prominent than those of the Giant. They are further distinguished by a bell-shaped tube at the centre of the corolla, over an inch deep and an inch and a half wide, which endows the entire corolla with a distinctly campanulate appearance, very different from the practically flat flowers of *S. gigantea*. The outer corona-lobes are three-toothed at the apex, as are those of *S. gigantea*; but the inner corona-lobes differ in having the summit of their broad dorsal wings also three-toothed.

The contrast between *S. gigantea* and *S. nobilis* can well be seen by comparing the huge flat flowers shown in Fig. 482, with the smaller, more hairy and deeply tubed flowers of Fig. 476. But matters are not always so clear. Note the prominent depression shown at the centre of the flower of *S. gigantea* in Fig. 486, as figured in the Botanical Magazine a dozen years before *S. nobilis* had been described, and again note the varying depth of the tube in individual flowers in Fig. 478, a photograph, by the way, which is to us one of the most alluring we have seen. And finally note how shallow the flowers of *S. nobilis* appear in Fig. 475.

For the present the records of the two species must be accepted in some cases with reservations. "There are too few reliable records," says Miss Verdoorn. "The impression I had was that *S. nobilis* was com-

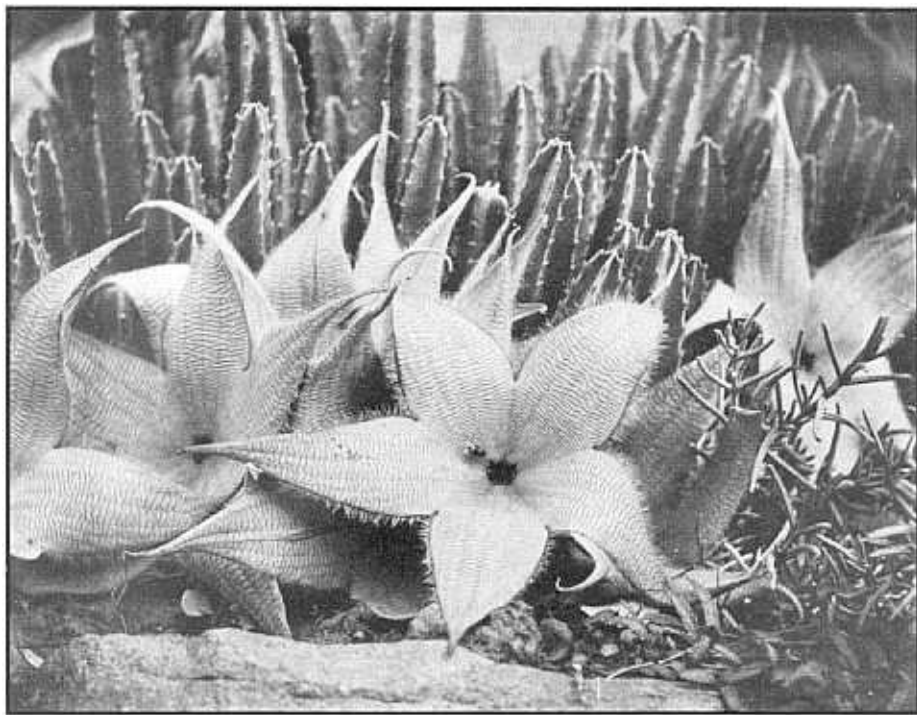


FIG. 481

Stapelia gigantea N. E. Brown x 0.25
Photo by S. Tapscott.

mon in the Transvaal and that *S. gigantea* was most frequent north of the Zoutpansberg into Southern Rhodesia, with straggling colonies in the escarpment itself and following those mountains eastward and the Drakensbergen southward, eventually reaching the dry parts of Zululand. Both species are present on the northern slopes of the Zoutpansberg, which is a meeting place for no less than four regional floras. At the west end of this section the Zoutpansbergen rise abruptly from the extensive surrounding sandy flats, and continue eastward, becoming higher and broader, with parallel ranges, until they meet the Drakenbergen. At this westerly point of origin lies the Salt Pan which gives its name to the whole range and incidentally to the Farm Zoutpan, where we collected in November, 1932. The Transvaal plants meet with a severe check in the north when they come to this Zoutpansberg range, and, in bands or straggling, they can proceed toward the west only to be overcome by the sands of the Kalahari carrying the Kalahari flora. Then again the Angola-Rhodesian flora is called to a halt in the south by the same range and tries to creep around that westerly point too; while along the range and at its foot at the same point one finds the plants common to the eastern mountains and their valleys. At the foot of the Zoutpansberg, just above the Salt Pan, we found a few plants of *S. gigantea*, while in the sandy flats under the thorn trees we found large colonies of *S. nobilis*. I felt that *S. gigantea* was a straggler from Rhodesia and that *S. nobilis* was from the Transvaal and the borders of the Kalahari. Where *S. gigantea* is recorded from Barberton it would still be a straggler in the

mountains I have mentioned and in their valleys. However, all these speculations appeared to crumble when I recently received a record of *S. gigantea* growing a few miles (about 30) west of Pretoria. If this record should be confirmed (one imagines plants may have become mixed or something), then I am all wrong in my theory of the distribution of the two species."

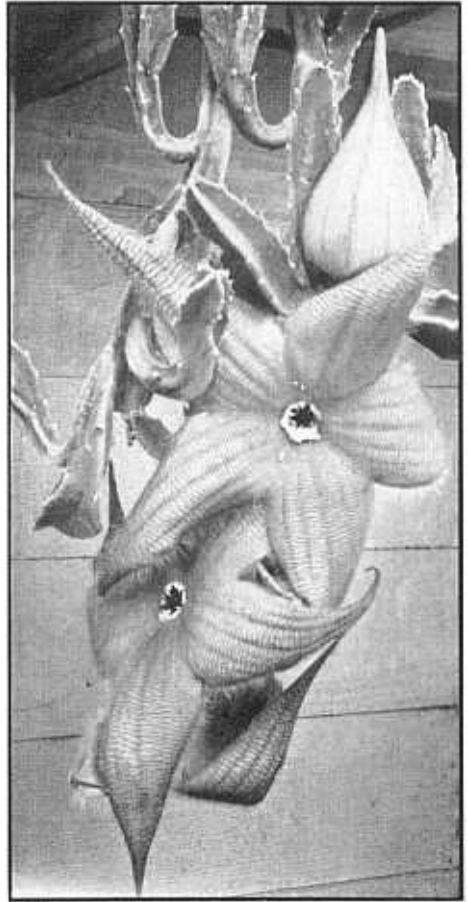


FIG. 482

Stapelia gigantea N. E. Brown x 0.2
From the collection of Mrs. W. D. Harney.



FIG. 483

Stapelia gigantea var. *pallida* Phillips x 0.07
The identification is uncertain.

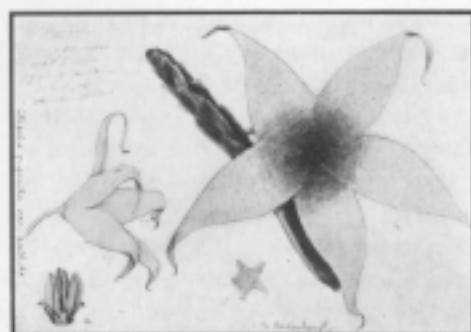


FIG. 484

Stapelia gigantea var. *pallida* Phillips x 0.2
From the original water color drawing by B.
Badenhorst for the Flowering Plants of South
Africa, 1925.

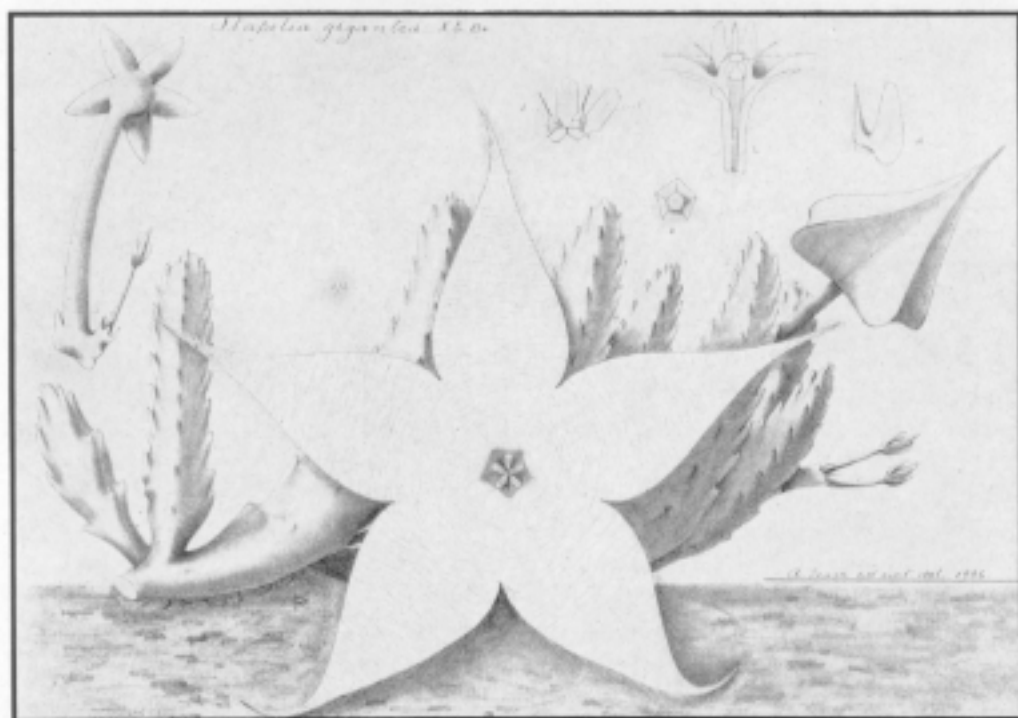


FIG. 485

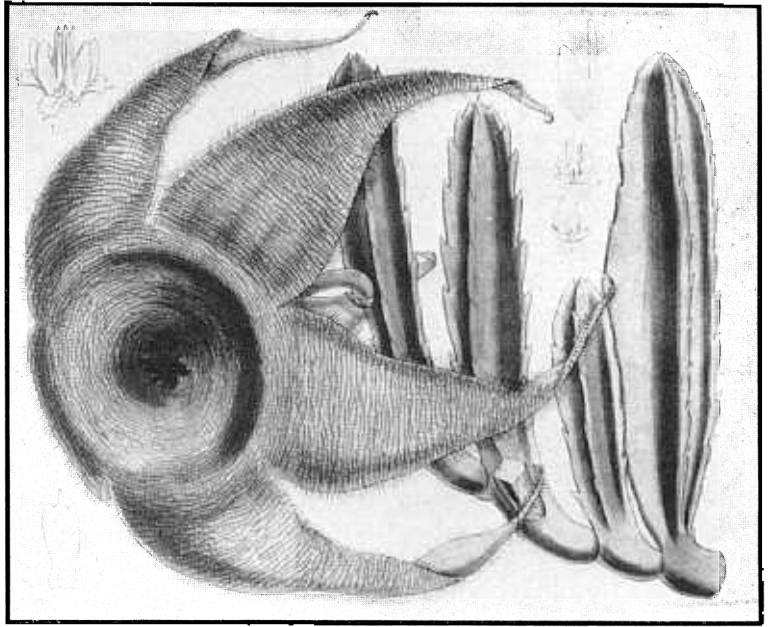
Stapelia gigantea N. E. Brown

Drawing by Antonio de Figueiredo Gomes e Sousa of a plant from Mangulane, Portuguese East Africa.

FIG. 486

Stapelia gigantea N. E.
Brown x 0.7

From a drawing by Miss
Matilda Smith, in Curtis's
Botanical Magazine, 1889.



Var. a. *Stapelia gigantea* var. *pallida* Phillips, Flow. Pl. So. Afr., t. 181. 1925.

(Description by Dr. Phillips, l.c.):

Stems: robust, bright green, finely pubescent, prominently ridged, with each ridge ending in a tooth-like leaf;

Flowers: solitary;

Pedicel: 5 cm. long, terete, finely pubescent;

Sepals: 11 mm. long, lanceolate, acute, pubescent;

Corolla: 25 cm. in diameter when expanded; *lobes* 10 cm. long, 3 cm. broad at the base, ovate, long-attenuate, pubescent without, transversely rugose and with fine purple hairs on the inner face; *disk* shallowly depressed, covered with long soft purple hairs;

Outer corona: lobes oblong;

Inner corona: lobes deeply cleft, with the outer segments plate-like and the inner segments linear.

Type locality: Uncertain: perhaps Transvaal, without precise locality?

Distribution: Unknown.

The "pale Giant" appears to be an intermediate variety between *Stapelia gigantea* and *S. nobilis*. Nothing is known of its origin, except that the specimen on which Dr. Phillips based his description was grown in Pretoria about 1924 by Dr. A. J. T. Janse, the distinguished naturalist and author of the monumental treatise on the Moths of South Africa. The flowers differ from those of *S. gigantea* in their much lighter color and in having the centre of the corolla depressed. They differ from the flowers of *S. nobilis* in having the

central depression less cup-shaped. They differ from both species in not having the outer corona-lobes 3-toothed. Their combination of the type of corolla-lobes found in *S. gigantea* with the central depression reminiscent of *S. nobilis* produces a very striking effect and they sometimes rival the Giant itself in size. The flower shown in Fig. 483, for instance, which was grown in the rockery of Mrs. D. van der Bijl, Great Brak River, C. P., measured 15 inches in diameter.

49. *Stapelia youngii* N. E. Brown, Kew Bull., 43. 1931.

(Description by Dr. Brown, l.c., translated from the Latin):

Stems: rather crowded, erect, $7\frac{1}{2}$ to $12\frac{1}{2}$ cm. long, $1\frac{1}{2}$ to 2 cm. thick, velvety-puberulous; angles compressed with short teeth and erect leaves 1 to 2 mm. long;

*Pedice*l: 6 to 20 mm. long, 3 to 4 mm. thick, puberulous;

Corolla: $12\frac{1}{2}$ to 15 cm. in diameter; *disk* slightly depressed without a tube; *lobes* $4\frac{1}{2}$ to $6\frac{1}{2}$ cm. long, $2\frac{1}{2}$ to 3 cm. broad, ovate-lanceolate, acuminate; corolla puberulous outside; inside yellow or greenish-yellow with transverse purple lines, transversely rugose, the apical portion of the lobes glabrous, the remainder thinly covered with purple hairs, ciliate with long simple hairs;

Outer corona: lobes 6 mm. long, linear-oblong, concave, recurved at the tips, truncate, apiculate, blackish;

Inner corona: lobes in two segments; inner segment 8 mm. long, subulate, erect; outer segment 6 mm. long, lanceolate, obtuse.

Type locality: Southern Rhodesia: near Salisbury.

Distribution: Not further known.

An interesting tropical species, closely allied to *Stapelia gigantea*, but with much smaller stems and flowers, the corolla with shorter points to the lobes. It was discovered by R. G. N. Young about 1930 and is named for him.

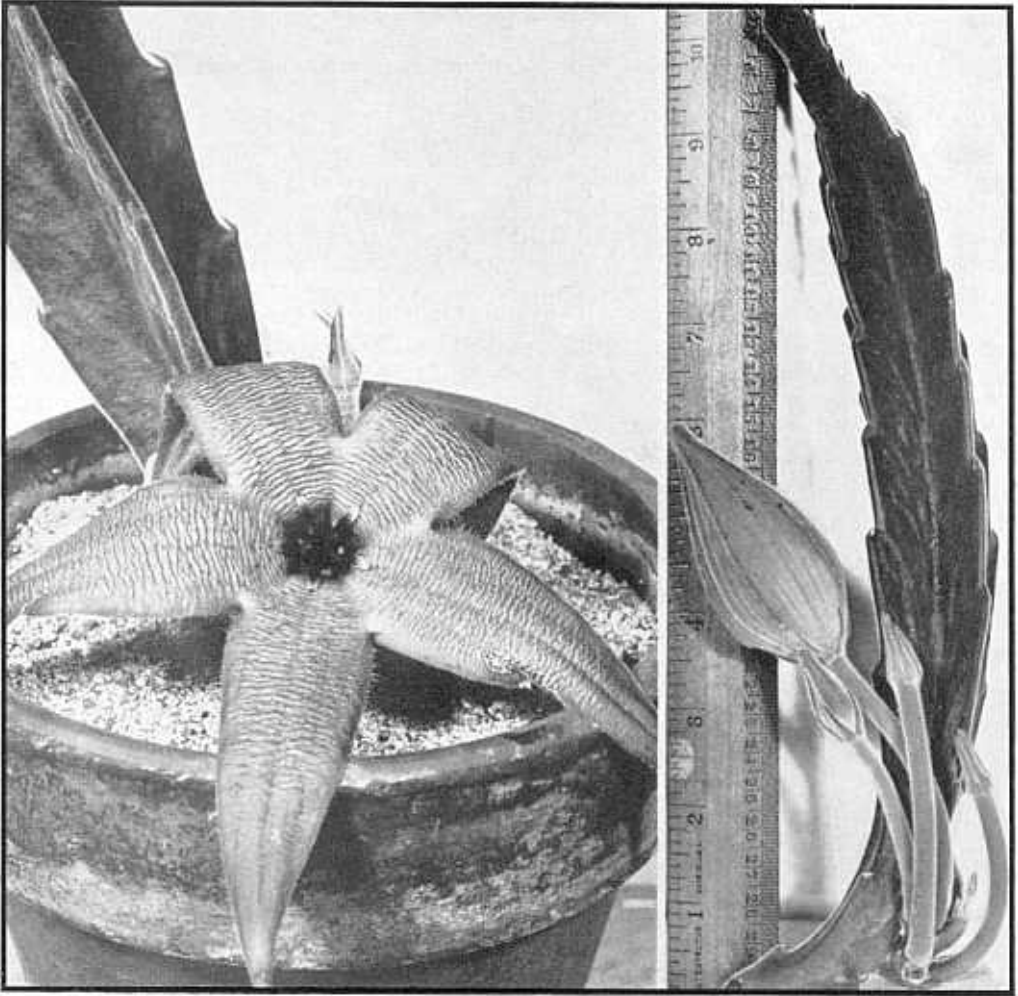


FIG. 487

Stapelia maccabeana White et Sloane x 0.7550. *Stapelia maccabeana* White et Sloane, Stap., 1 Ed., 166. 1933.

(Description by A. White and B. L. Sloane):

Species in editione prima operis nostri depicta, *Stapeliam conformem* notis plurimis simulat, flores autem latiores ad 15 cm. diametientes ostendit, corollaeque lobos valde angustiores.

Stems: erect, branching at the base, up to 28 cm. high, 3 to 4 cm. square, sides much compressed, dark green, velvety-puberulous; teeth $2\frac{1}{2}$ to $3\frac{1}{2}$ cm. apart with incurved rudimentary leaves 3 mm. long;

Flowers: 1 to 3 together, successively developed from a short peduncle near the base of the young stems;

*Pedice*l: up to 8 cm. long, 5 mm. in diameter, puberulous;

Sepals: 15 mm. long, lanceolate, acuminate, puberulous;

Corolla: 15 cm. in diameter, puberulous on the back with the pubescence pronounced on the 5 nerves of each lobe; pale green tinged with purple on the apical half; inner face transversely rugulose except on apical third of lobes and glabrous except for a very sparse minute pubes-

cence in the pentagonal cavity containing the corona, irregularly and sparsely ciliate on the edge of the lobes with simple white hairs 1 mm. long; *disk* and *lobes* dull greenish-yellow marked with numerous crowded irregular purplish lines not extending to the margins, margins and apical fifth of the lobes entirely greenish-yellow, 5 greenish-yellow lines running from the sinuses to the cavity containing the corona, disk broadly pentagonal, 2 cm. deep, lobes very spreading and then recurving, $6\frac{1}{2}$ cm. long, $2\frac{1}{4}$ cm. broad, lanceolate, acuminate;

Outer corona: lobes ascending-spreading, 8 mm. long, linear, acuminate, deeply channeled down the face, light brown with paler margins;

Inner corona: lobes purplish-brown with dorsal wing adnate for half its length, deltoid, acute, toothed on the inner margin; inner horn connivent at the base, erect and somewhat spreading, 5 mm. long, triquetrous-subulate.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

While the description of this species bears many points in common with that of *S. conformis*, actually the flowers are very different, their greater size (to 6 inches in diameter) and the proportionately much more slender character of the corolla-lobes making them extremely distinctive. The type plant is No. 251 in the White and

Sloane collection. It was received from Mrs. Helen McCabe of San Diego, who grew it from South African seed. The name was given in recognition of the important work done by Mrs. McCabe in making many additional species of the *Stapel-*iads available to American collectors.

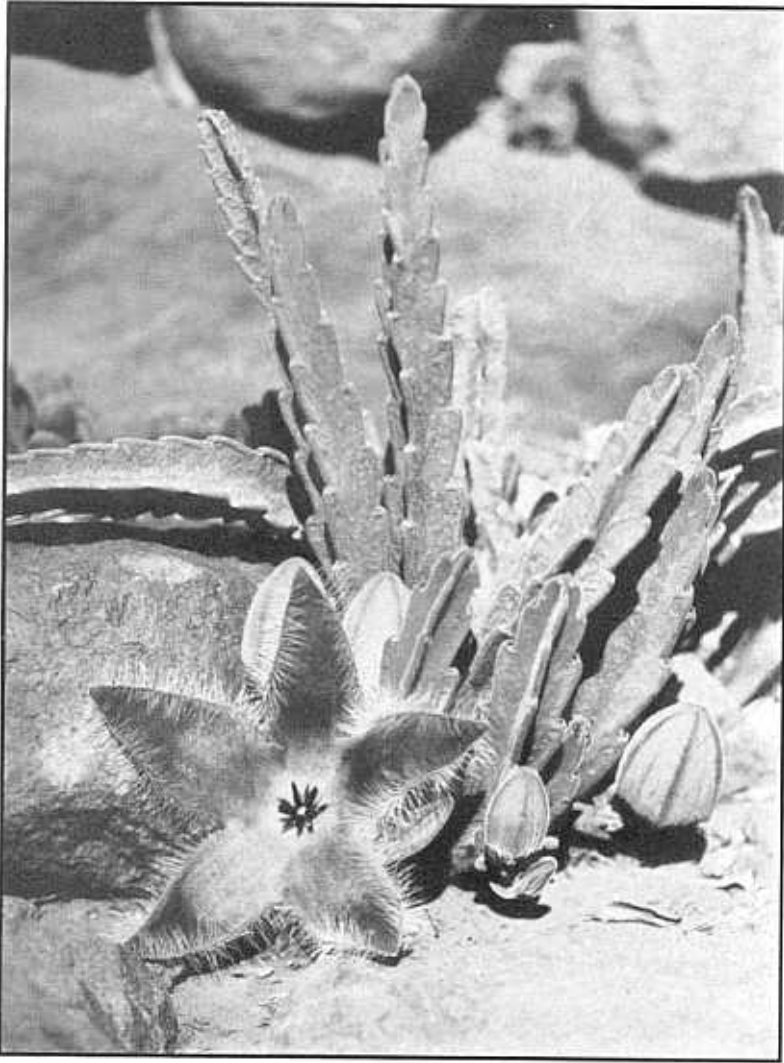


FIG. 488

Stapelia grandiflora Masson x 0.5

Photo by S. Tapscott.

51. *Stapelia grandiflora* Masson, Stap. Nov., 13. 1796.

Stapelia spectabilis Haworth, Syn. Pl. Succ., 16. 1812.

Stapelia obscura N. E. Brown, Gard. Chron., vii. 558. 1877.

(Description by Dr. Brown Flora Cap., iv. i. 945):

Stems: 6 to 12 in. high, 1 to 1¼ in. square, with very compressed angles and deeply trough-shaped sides, prominently toothed, with incurved-erect rudimentary leaves 1 to 2 lin. long, minutely velvety-pubescent;

Flowers: 1 to 3 together near the base of the stems, successively developed;

Pedicel: ¾ to 1 in. long, stout, velvety-pubescent;

Sepals: 3½ to 5 lin. long, lanceolate, acute, velvety-pubescent;

Corolla: in bud ovoid, acute; when expanded 5 to 6 in. in diameter, flat or the lobes recurving and $1\frac{3}{4}$ to $2\frac{1}{2}$ in. long, 1 to $1\frac{1}{4}$ in. broad, ovate-lanceolate, acute, not recurved or revolute at the margins, rather minutely velvety-pubescent on the back; inner face dark purple-brown, without any markings, darkest on the erect glabrous and transversely rugose apical half of the lobes, densely and softly villous with long erect purple hairs on the disk and basal half of the lobes and ciliate to their tips with long simple whitish or pale purple hairs, half of them directed inwards;

Outer corona: lobes ascending-spreading, 3 to 4 lin. long, linear-oblong, acuminate or rounded into a short subulate point at the apex, concave down the face, dark purple-brown, dull yellowish at the base;

Inner corona: lobes ascending-spreading, about 5 lin. long, very dark purple-brown, with the broad dorsal wing usually adnate for $\frac{3}{4}$ to the whole (more rarely for only half) of its length to and not much shorter than the slightly curved or straight (not hooked-tipped) triquetrous-subulate acute inner horn, irregularly toothed or entire at the top or free part.

Type locality: Cape Prov.: Uitenhage Distr.: near Sundays River.

Distribution: Also from Alexandria; Bathurst; Port Elizabeth; Prince Albert; Somerset East; and Venterstad districts; Transvaal: Lydenburg Distr.: Waterval Valley.

The "large-flowered *Stapelia*" has received much attention since Francis Masson first collected it, before 1792, in "warm places in South Africa near the Sunday River," meaning somewhat inland from Port Elizabeth. Of the *Stapelias* known to Masson, it was easily the largest-flowered, though since dwarfed or rivaled by half-a-dozen other species. At best the flowers are 6 inches in diameter, but as the season progresses the flowers become more numerous and decidedly smaller. Sometimes a plant will have as many as 20 flowers in bloom at one time. They remain open several days, and the older flowers, like those of many other *Stapeltonia* species, often swarm with flies and maggots and are not attractive to behold. Many plants in cultivation are popularly called *Stapelia grandiflora* which are only hybrids or often other species entirely. The true *S. grandiflora* is a uniformly dark-brown flower, somewhat rugose and noteworthy for its hairy aspect. At the centre of the corolla there is a cushion of short, soft purple hairs, which extends half-way up the lobes in a flourish of more scattered and longer hairs of similar color. Around the edges of the lobes there is a thick fringe of long white or pale purple hairs, in large part directed inwards. The inner corona is a striking affair, the horns

strong and graceful, and supported by a wide, toothed wing.

Stapelia grandiflora is an occasional parent of *Stapeltonia* hybrids. In general these

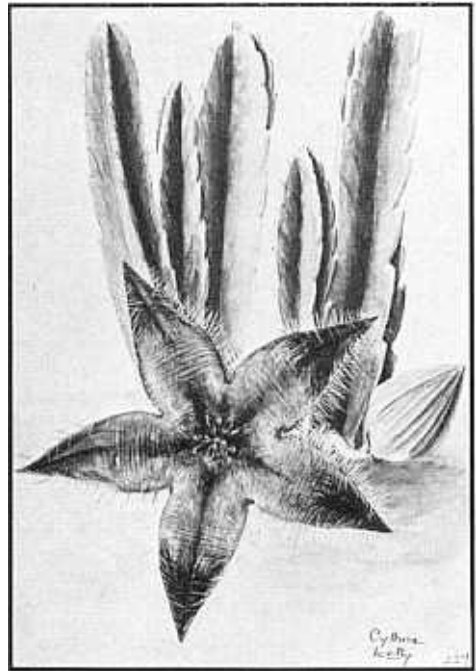


FIG. 489

Stapelia grandiflora Masson x 0.5

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932.

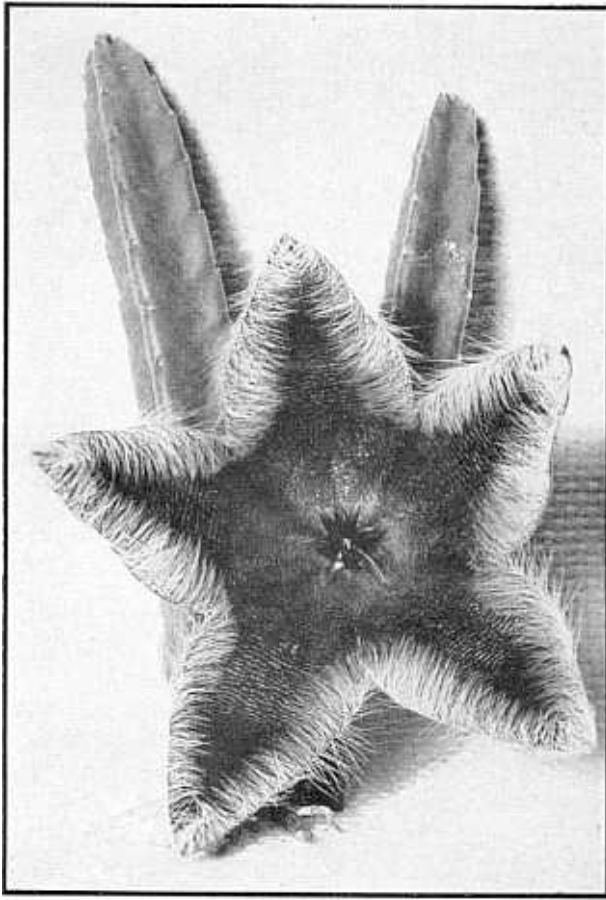


FIG. 490

Stapelia grandiflora Masson x 0.8

From the collection of Mrs. Helen McCabe.

are recognizable by the dark coloring of the flowers (which is either uniform or less conspicuously marked with transverse yellow lines than are the hybrids of *S. hirsuta* and *S. asterias*) and by their hairiness, or "villosity," to adopt an excellent word from Francis Masson's description of the

type. These hybrids are characterized in several cases by having the central united disk more depressed than it is in the type, sometimes broadly bowl-shaped. The flowers vary in size between 3 and 6 inches, and the hybrids with the larger flowers are naturally the most sought after.

***Stapelia cantabrigiensis* Berger, Stap. und Klein., 293. 1910.**

This hybrid was named for its probable origin in the Botanical Gardens at Cambridge, England, about 1899. It has continued true to name and is occasionally found now-a-days in collections, though the name, like so many other hybrid names, is often misapplied. The stems are less compressed than those of *S. grandiflora*. The 6-inch flowers are broadly bell-shaped; the corolla-lobes lanceolate, 5-nerved on the outer surface, uniformly brownish-red

within, rugose; the disk and basal half of the lobes covered with thick fine red-brown hairs, shorter, however, than those of *S. grandiflora*; ciliate to the tips of the lobes with reddish-brown hairs; outer corona-lobes linear, with short awn-like tips; inner corona-lobes longer than the outer, inner horn erect, thread-like, with an ascending-spreading linear obliquely truncate toothed dorsal wing.

***Stapelia magna* Berger, Stap. und Klein., 295. 1910.**

The name of the "big *Stapelia*" is not infrequently encountered on the labels accompanying plants evidently of mongrel *Stapeltonia* origin, but we have not found any specimen at all closely approaching Berger's specifications and we do not know whether the orthodox form of *S. magna*, as described by him, still survives. These specifications call for a strong-stemmed plant, very velvety to the touch, with nearly square angles; flowers 5 to 6 inches in dia-

meter, lobed somewhat more than half-way down, dark brown, transversely rugose, especially at the centre, less closely so on the lobes, with some of the rugosities slightly yellowish, the disk and basal half of the lobes covered with curly soft violet-red hairs; inner corona-lobes with a long pointed horn and the dorsal wing free nearly to its base. The origin of this plant is unknown.

***Stapelia virens* Link, Enum. Pl. Hort. Berol., i. 258. 1821.**

The "verdant *Stapelia*" is a small-flowered hybrid of the *S. grandiflora* group, the corolla only 3 inches in diameter, uniformly dark purple-brown or with a few whitish or pale yellowish transverse lines on the lobes. The disk is depressed at the centre and with the base of the lobes is thickly covered with soft erect purple hairs.

The lobes are densely ciliate to their tips with long pale purple hairs. The inner corona-lobes have the dorsal wing free to the base, while the slender inner brown horn curves boldly over the wing and sometimes beyond it. The origin of the hybrid is unknown, and it appears to have vanished from cultivation altogether.

***Stapelia pasadenensis*, hybr. nov.**

Species hybrida prope *Stapeliam grandifloram* locanda. Corolla 12.5 cm. lata, vinosa, centro in infundibulum ad 1 cm. depressa; discus pilis purpureis tectus; pilorum longiorum zonae quinque lineatim e centro ad sinos inter lobos radiantes; lobi pilis simplicibus purpureis ciliati, apicibus praevalutis ad dorsum floris sese invicem transgredientes.

Figs. 491 and 492 represent a hybrid of the *S. grandiflora* group, mentioned without name at p. 79 in the first edition of this book. We found it growing in our collection at Pasadena, as our No. 69, and we believe it is entitled to represent the city among the hybrids, for it has a beautiful and distinctive flower. The stems are 3 to 6 inches high, softly pubescent, with inconspicuous teeth. The corolla is 5 inches in diameter, wine-red, with a central cup nearly a half-inch deep. The disk is covered with purple hairs, with five bands of longer

hairs radiating from the centre to the sinuses between the lobes. The lobes are ciliate with simple purple hairs, half directed inwards, otherwise glabrous. They are so revolute at the apex that they fold across each other on the back of the flower.

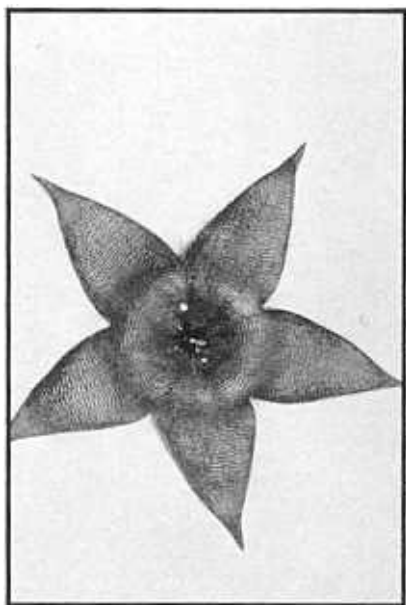


FIG. 491

Stapelia pasadenensis, hybr. nov. x 0.4



FIG. 492

Stapelia pasadenensis, hybr. nov. x 0.5

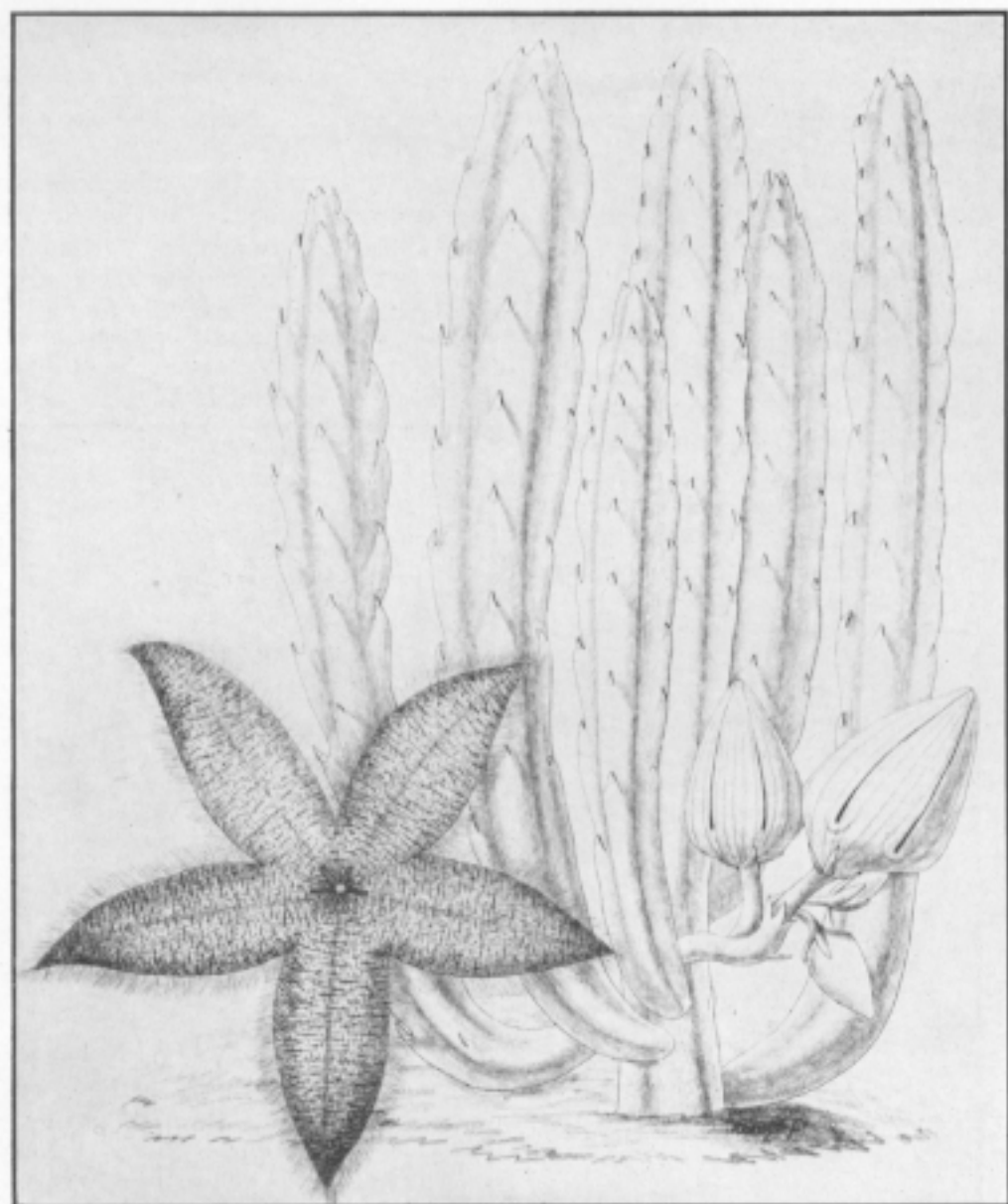


FIG. 493

Stapelia ambigua Masson x 0.6From Masson: *Stapeliae Novae*, 1796.52. *Stapelia ambigua* Masson, Stap. Nov., 13. 1796.(Description by Dr. N. E. Brown, *Flora Cap.*, iv. i. 943):*Plant*: 8 to 9 in. high, branching at the base; *stems* $\frac{3}{4}$ to 1 in. square, softly pubescent; angles compressed, with erect rudimentary leaves $1\frac{1}{2}$ to 2 lin. long at the teeth;*Flowers*: successively developed in a 3 to 5-flowered cyme near the base of the stems;*Pedice*: $\frac{3}{4}$ to 1 in. long, velvety;*Sepals*: 4 lin. long, $\frac{3}{4}$ to 1 lin. broad, narrowly lanceolate, acute, velvety;

Corolla: in bud ovoid, acute; when expanded $4\frac{1}{2}$ to 5 in. in diameter with the recurved lobes spread out, velvety on the back; inner surface transversely rugose, brownish-purple with darker transverse lines (rugosities) on the lobes, somewhat thinly covered with erect purple hairs on the disk or disk and basal half of the lobes, glabrous on their apical half, ciliate to their tips with long simple light purple and white hairs, half of them directed inwards; lobes $1\frac{1}{2}$ to 2 in. long, 9 to 10 lin. broad, lanceolate, acute;

Outer corona: lobes ascending-spreading, 4 lin. long, linear-lanceolate, acute and recurved at the apex, channeled down the face, dull red-brown, with ochreous apex and margins;

Inner corona: lobes diverging, dark purple-brown, with the dorsal wing nearly free or adnate for $\frac{1}{3}$ to $\frac{1}{2}$ of its length to the inner horn, ascending, deltoid or deltoid-oblong, more or less toothed on its inner margin; inner horn triquetrous-subulate, more or less recurved-hooked at the apex.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Victoria West Distr.: near Victoria West; Uitenhage Distr.: Barkly Bridge Station.

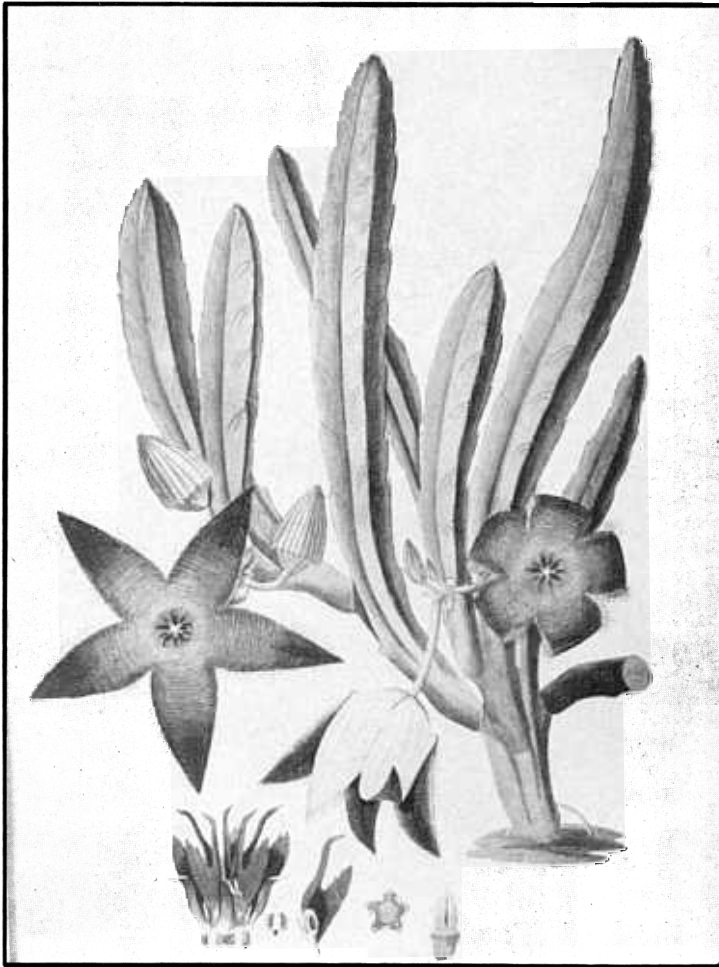


FIG. 494

Stapelia ambigua var. *fulva* Sweet x 0.3

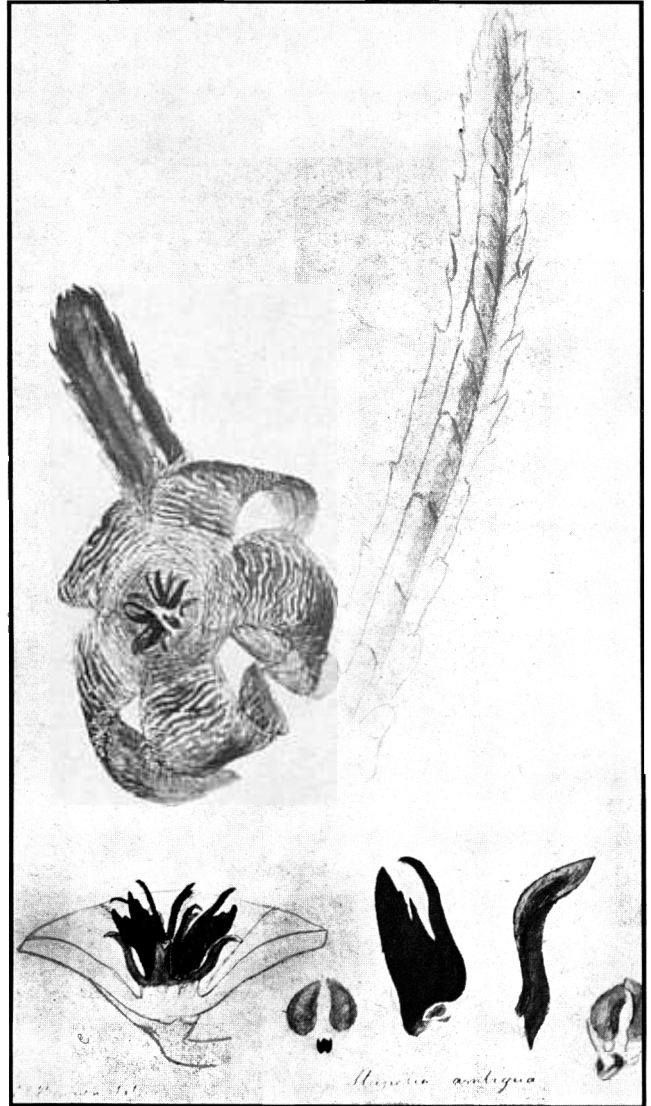
From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

FIG. 495

Stapelia ambigua Masson x 0.7

Drawing by N. E. Brown. Reproduced by permission of the Bentham Trustees.

Collected by Francis Masson in the "arid deserts of South Africa" and flowered in his garden at the Cape in March, 1794. He may have given it the name, the "uncertain *Stapelia*," because of the confusing resemblance its flowers bear to those of *Stapelia grandiflora*. There are four principal differences: the smaller flowers, the narrower corolla-lobes, the scantier and rather stiffer hairs on the corolla-disk and the recurved-hooked apex of the inner horn of the inner corona-lobes. The last-named detail (shown in Fig. 355) is always conclusive. The plant is a fine one, the stems to nine inches high, the flowers brownish-purple inside with dark transverse rugosities on the lobes, ciliate with long simple purple and white hairs.



Var. a. *Stapelia ambigua* var. *fulva* Sweet, Hort. Brit., 2 Ed., 357. 1830.

Stapelia ambigua var. Jacquin, Stap., t. 54. 1806-19.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 944):

Corolla: disk and basal half of the lobes pale yellowish-green with transverse purple-brown lines, apical half of the lobes entirely purple-brown.

This "tawny variety" was first observed by Baron de Jacquin in the Imperial Gardens at Schönbrunn about 1800, and it was long supposed to have arisen there from hybrid origin. However, it has recently

been found in the natural state by Mr. Gray near Uitenhage, Cape Province, and Mr. Herre reports it from Philippolis, Orange Free State. It differs from the type only in the coloring of the corolla.

53. *Stapelia gettleffii* Pott, Ann. Transv. Mus., iii. 226. 1913.

(Description by Mrs. R. Leendertz Pott, l.c.):

Stems: erect, decumbent at the base, 8 to 10 in. high, 6 to 8 lin. square, with concave sides and toothed angles, velvety-pubescent, green; teeth tipped with a rudimentary incurved leaf 5 to 6 lin. long;

Flowers: 1 to 3 together near the base of the young stems, successively developed;

*Pedice*l: 3 in. long, $2\frac{1}{2}$ lin. thick, velvety-pubescent, pendulous;

Sepals: 6 lin. long, lanceolate, acute, velvety-puberulous;

Corolla: 6 to $6\frac{1}{2}$ in. in diameter with the lobes extended, the back greenish-yellow, minutely puberulous, the inner surface transversely rugose, purple, yellowish-tinted at the centre, marked with transverse yellowish lines from the base to the tip of the lobes, leaving the margin and extreme tip intact; *disk* flat, 1 in. in diameter; *lobes* $2\frac{3}{4}$ in. long, 1 in. broad in the middle, lanceolate, acute, flat, slightly recurved; disk and very base of the lobes densely covered with long fine downy intermingled light purple hairs, the remaining part of the lobes puberulous the margins ciliate with rather coarser whitish and light purple hairs about 6 lin. long;

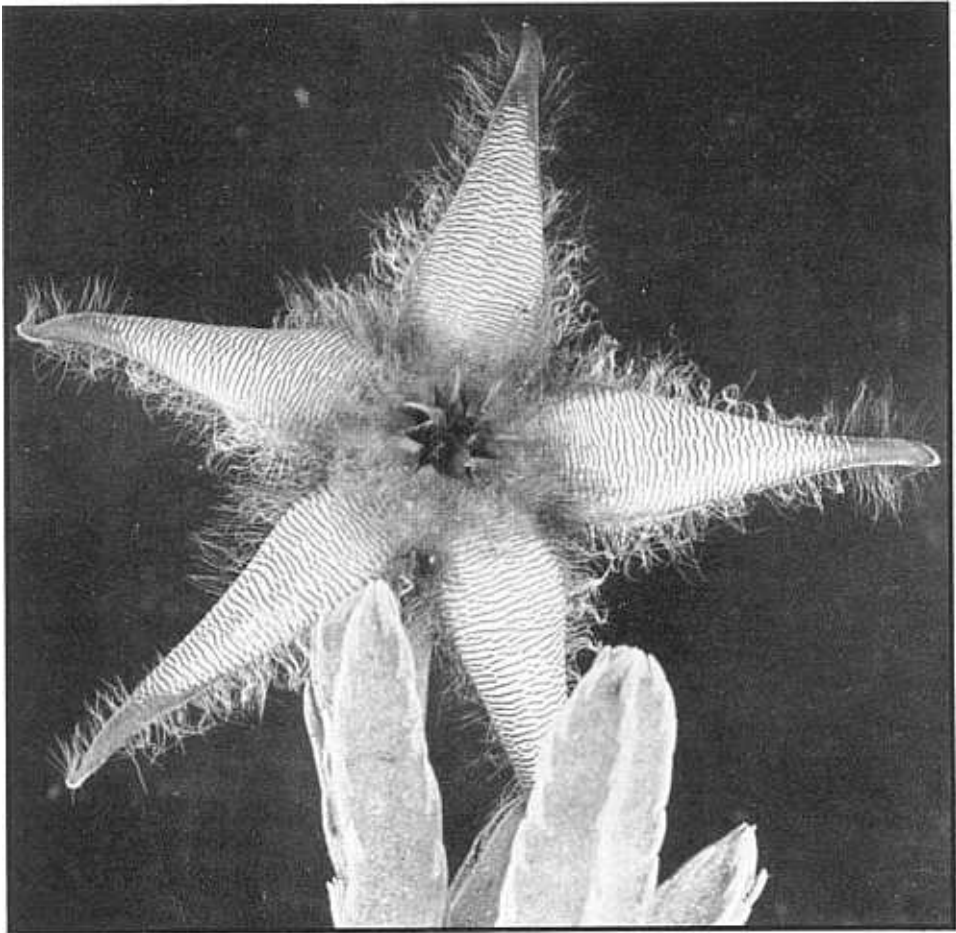


FIG. 496

Stapelia gettleffii Pott x 1.

Photo by T. N. Leslie.

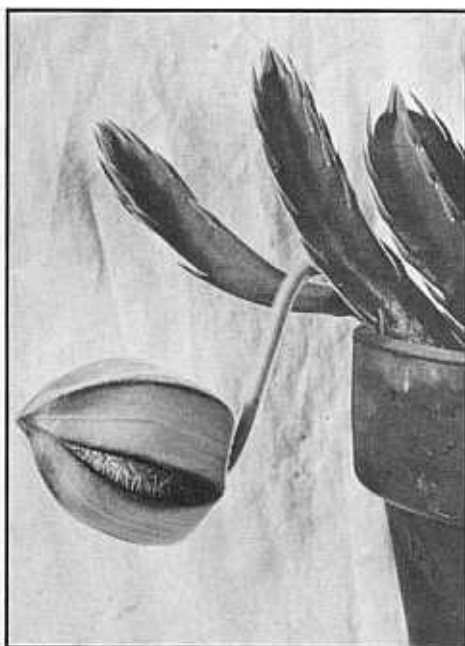
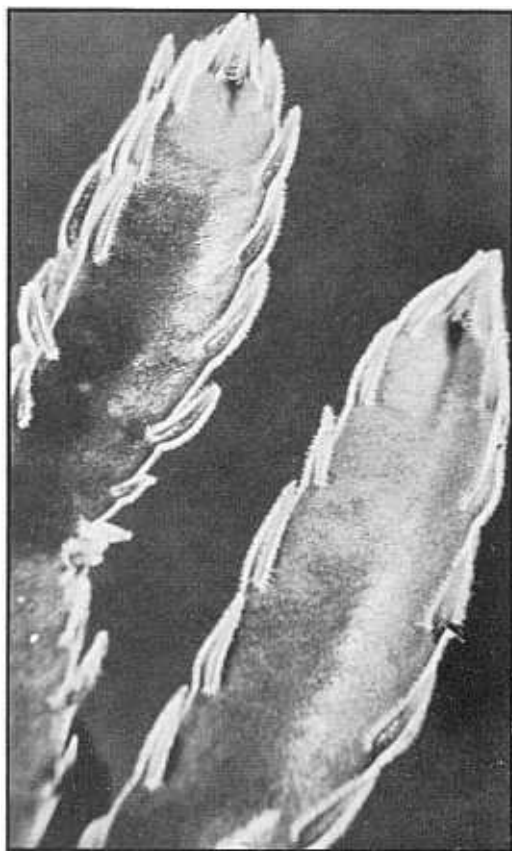


FIG. 498
Bud of *Stapelia*
gettleffii Pott

FIG. 497

Stapelia gettleffii Pott
Stems, showing length of
rudimentary leaves.



FIG. 499
Stapelia gettleffii Pott
Plant in natural surroundings
near Buffelsvlei. Photo: G. W.
Reynolds, Johannesburg.

Outer corona: lobes dark purple-brown, ascending-spreading with recurved tips, 3 lin. long, deeply channelled down the face, tapering into a subulate point;

Inner corona: lobes dark purple-brown, recurved-spreading, 6 lin. long with the dorsal wing 3 lin. long, adnate for the whole of its length to the inner horn and truncate and toothed at the top; inner horn triquetrous-subulate, recurved, not hooked at the apex.

Type locality: Transvaal: Zoutpansberg Distr.: Louis Trichardt.

Distribution: Transvaal: Zoutpansberg Distr.: in sandy places between Waterpoort and Zoutpan; also between Leipsig and Bochum; Waterberg Distr.: near Naboomspruit; Pietersburg Distr.: at several points; Zeerust Distr.: near Zeerust, in limestone veld; Lydenburg Distr.: Waterval Valley; Malips Drift, north of Lydenburg; Bechuanaland Protectorate?

A handsome species, discovered in 1911 by G. F. Gettleff in the foothills of the Zoutpansberg Mountains, Transvaal, some 600 miles from the habitat of *Stapelia hirsuta*, its closest relative. It is frequent all through the tropical sections of the Transvaal, extending south to the Lydenburg district and west to the Zeerust district and probably into the Bechuanaland Protectorate. "It occurs only in one place in the Zeerust district," J. C. J. Knobel writes us, "close to the native location. In the Bechuanaland Protectorate, a native once brought a piece of the plant and a flower to our camp at Boatlaname, 80 miles north of Molepolole. He admitted that it did not grow wild there and that he had brought it from Khama's country (the adjoining and largest Bechuana Native Reserve) and stated that it is used medicinally. In the same way the Zeerust plant may have been introduced by a Kaffir doctor."

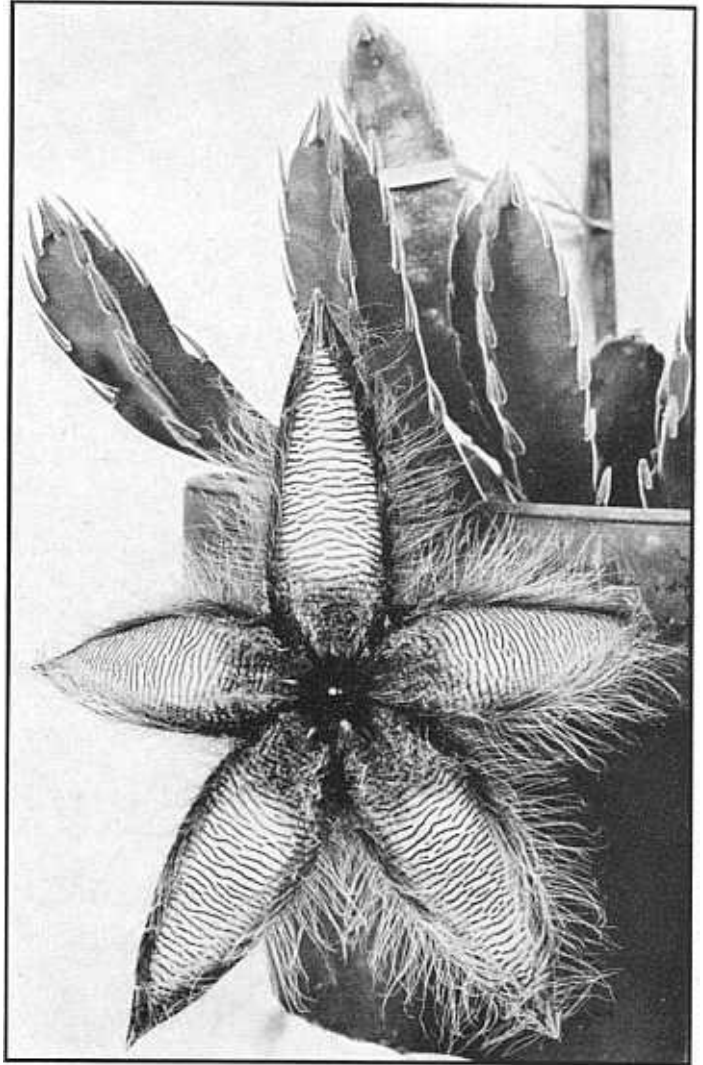


FIG. 500

Stapelia gettleffii Pott x 0.8

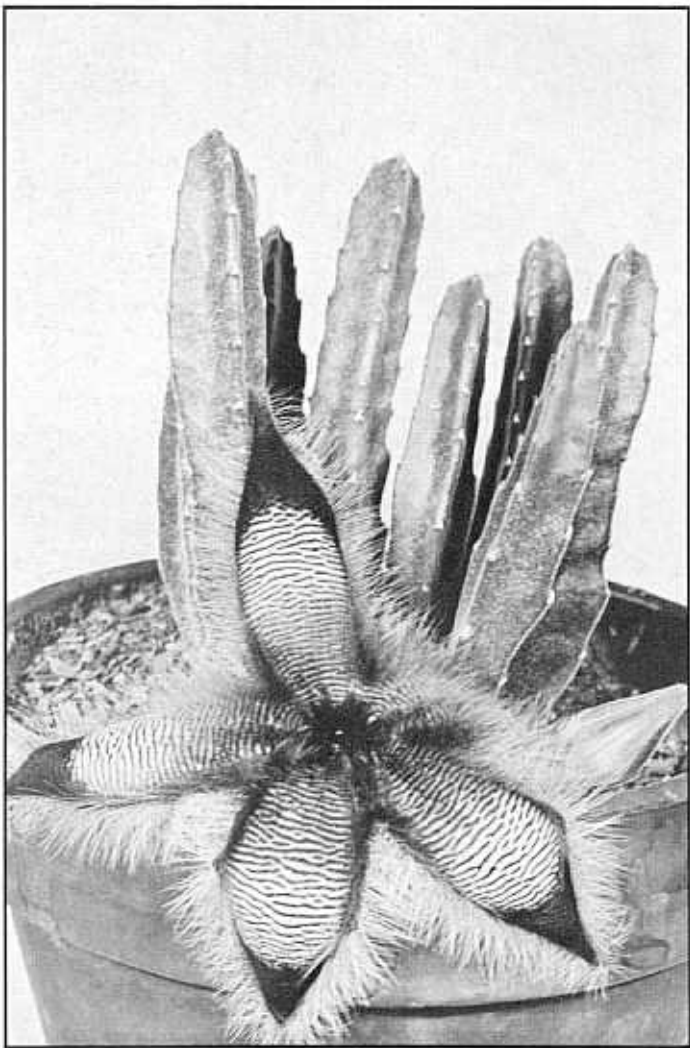


FIG. 501

This plant doubtless represents a hybrid of *S. gettleffii*, but it will be noticed that the stems do not have the prominent rudimentary leaves characteristic of that species.



FIG. 502

Stapelia gettleffii Pott x 0.25

Plant growing near Messina, among dry fallen leaves under a bush.

Photo: G. W. Reynolds, Johannesburg.

G. W. Reynolds has taken some very interesting photographs of *S. gettleffii*. He writes: "This species seems rather plentiful in the north and east Transvaal bushveld. It is plentiful between the Zoutpansberg range and Messina, and east of Messina. Further south I have seen it repeatedly in the Olifants River Valley, the country north of Lydenburg and south of

Pietersburg. It is very plentiful near Buffelsvlei, in the Waterval Valley, 28 miles north-east of Lydenburg. The plants usually grow under thorn bushes in red sand; the stems are slender and limp, and lie along the ground, the pedicels and flowers flat on the ground, often half a dozen or more together.

"The flowers are about 10 cm. in dia-



FIG. 503

Stapelia gettleffii Pott x 0.25

Plant in natural habitat near Buffelsvlei, in shaded position.

Photo: G. W. Reynolds, Johannesburg.

meter and vary considerably in marking, from a cream to a palish lemon ground color, with the purple lines on the corolla-lobes varying from thicker and less broken to finer and more broken." And Dr. H. G. Schweickerdt writes us: "On our last trip to the Zoutpan, in April, 1934, Miss Verdoorn and I noticed plants bearing flowers of *S. gettleffii* which were quite pale—almost colorless and thus a kind of albino?—growing together with plants bearing

flowers of a normal color." In their marking the flowers resemble those of *S. hirsuta*, but occasionally they are larger, up to $6\frac{1}{2}$ inches in diameter, and the fringe of hairs around the corolla-lobes is longer. The principal earmark of the species is the unusual length of the rudimentary leaves, which grow close to the stem-angles in such a conspicuous fashion as to distinguish the stems from those of all the other *Stapeltonias*.

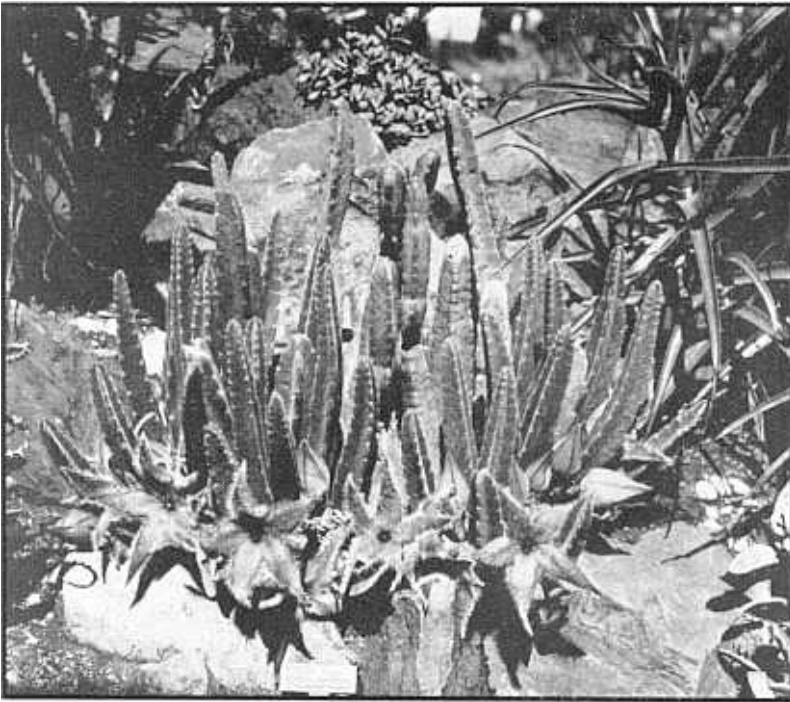


FIG. 504

Stapelia desmetiana N. E. Brown

From Bruintjes Hoogte. Photo: G. W. Reynolds, Johannesburg.

54. *Stapelia desmetiana* N. E. Brown, *Ga. N. Chron.*, vi. 684. 1889.(Description by Dr. Brown, *Flora Cap.*, iv. i. 941):

Stems: 6 to 12 in. high, $\frac{3}{4}$ to $1\frac{1}{4}$ in. square, with the angles much compressed and the teeth with erect rudimentary leaves 1 lin. long, green, conspicuously velvety-pubescent;

Flowers: usually 3 to 10 successively developed from a short stout peduncle near the base of the young stems;

Pedicel: usually $\frac{3}{4}$ to 1 in. long, occasionally longer, 2 lin. thick, velvety;

Sepals: 4 to 7 lin. long, lanceolate, acute, velvety;

Corolla: ovate, acuminate in bud; when expanded $4\frac{1}{2}$ to $6\frac{1}{2}$ in. in diameter, pubescent on the back, transversely rugose on the inner face, with the disk and basal $\frac{1}{3}$ to $\frac{2}{3}$ of the lobes varying from very pale purple to dark purple-red, with numerous transverse pale yellowish (rarely olive-colored) lines, rather broadest on the lobes, apical part of the lobes entirely dull purple to very dark purple, with the entire surface nearly or quite to the tips of the lobes covered with straight simple pale purple (or occasionally white) hairs 1 to $3\frac{1}{2}$ lin. long, all pointing towards the apex of the lobes, but not appressed; lobes 2 to $2\frac{3}{4}$ in. long, 1 to $1\frac{1}{4}$ in. broad, lanceolate, acuminate, flat, ciliate to the tips with long simple white or pale purple hairs, half of them directed inwards;

Outer corona: lobes ascending-spreading, slightly recurved at the tips, 3 to 5 lin. long, linear-oblong to slightly ovate-oblong or lanceolate, varying from acuminate or acute to very obtuse, with a minute apiculus or slightly 3-toothed at the apex, concave down the face, pale yellowish with a broad dull purple stripe down the middle and some purple dots along the margins or purple with the apex or some mottlings there yellowish;

Inner corona: lobes connivent-erect with the tips slightly diverging, dark purple-brown, often paler (or perhaps yellowish) towards the tips, variable, sometimes with the dorsal wing adnate

for $\frac{3}{4}$ or wholly to the inner horn, $1\frac{1}{3}$ to 2 lin. broad, truncate or oblique and denticulate or entire at the apex, sometimes free nearly or to the base or adnate for half its length, $\frac{3}{4}$ to $1\frac{1}{2}$ lin. broad at the base, deltoid or deltoid-attenuate to oblong, acute or obtuse or toothed; inner horn 3 to 5 lin. long, varying from slightly longer to twice as long as the dorsal wing, triquetrous-subulate, acute, straight or slightly recurving.

Type locality: Cape Prov.: Somerset East Distr.: near Little Fish River.

Distribution: Collected at many points in the south-east Cape Prov., including: Albany Distr.: 10 miles from Grahamstown; Alexandria Distr.: near Mimosa; Bedford Distr.: Babians River; Cradock Distr.: Graaff Reinet Distr.: Rynevelds Pass and stony hills near Graaff Reinet; Queenstown Distr.: Shiloh or Ouxkraal Mountains; Somerset East Distr.: Glen Avon; among prickly pear at Brintjes Hoogte; Uitenhage Distr.: near Zwartkops Station; Willowmore Distr.

This is a widely distributed Cape species, dedicated to L. de Smet, a well-known Belgian nurseryman about 1885. It is a vigorous, showy plant, with large conspicuously pubescent stems, the angles compressed and the teeth with little erect rudimentary leaves. The stems grow to a foot high and form strong clumps, in the var. *pallida* "sometimes yards across." The flowers are 5 to 6 inches in diameter, purple-red with transverse yellow lines, the whole corolla covered within with simple purple hairs, especially thick at the centre, the lobes fringed with white or purple hairs. The transverse yellow lines on the lobes usually stop short of the apex, which is uniformly dull purple; but in some flowers they continue to the apex. This is especially characteristic of the var. *apicalis*, which is also distinguished by having the upper part of the lobes without hairs on the inner surface. In the var. *pallida*, the margins and tips of the lobes are purple, the rest of the corolla greenish-yellow without markings. The type was introduced to the Royal Botanic Gardens, Kew, by Sir Henry Barkly, and was first collected by Prof. MacOwan. The

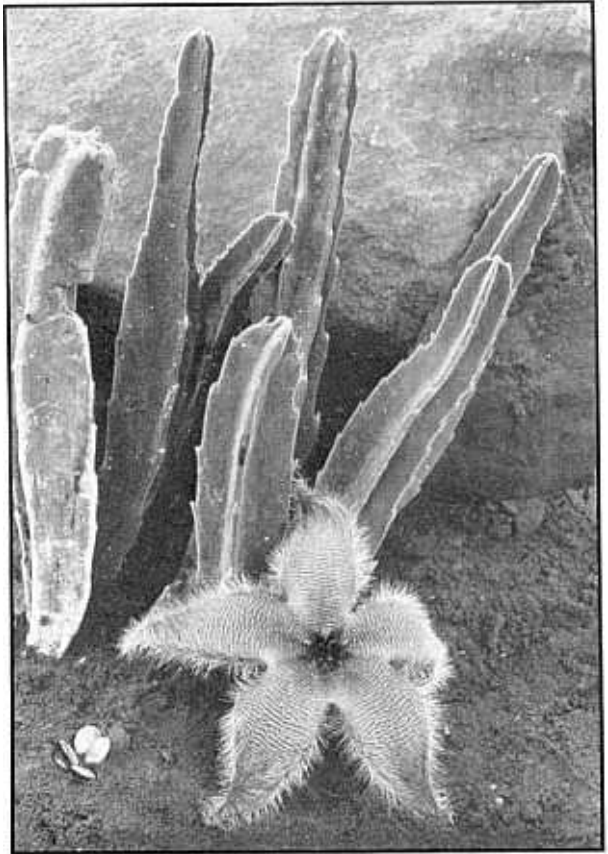


FIG. 505

Stapelia desmetiana N. E. Brown x 0.3

Photo by S. Tapscott.

var. *apicalis* was discovered by Juby, and the var. *pallida* by C. E. Pillans. A third outlying variety, var. *fergussonae*, is named for Mrs. E. Ferguson of Riversdale, who dis-

covered it near the Orange Free State boundary of the Cape Prov. The flowers are smaller than in the type, $4\frac{1}{2}$ inches in diameter, the corolla lemon-yellow

throughout, without rugosities and covered with long white silky hairs. The uniform canary-yellow corona is also distinctive.

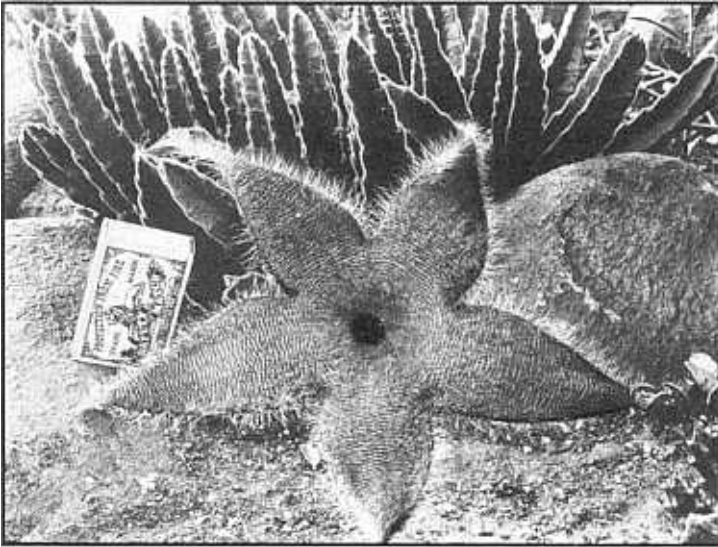


FIG. 506

Stapelia desmetiana N. E. Brown hybrid? x 0.5

Photo by S. Tapscott, who writes: "One of my seedlings. I am confident it is a hybrid and not the type of *S. desmetiana*. The flower is more like *S. flavirostris*, but it is much larger, as the matchbox shows."

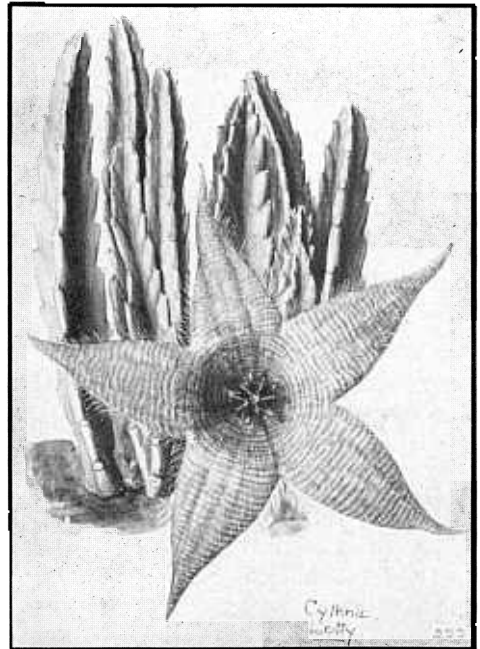


FIG. 507

Stapelia desmetiana N. E. Brown x 0.5

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932. Note that the transverse lines continue to the apex of the lobes.

Var. a. *Stapelia desmetiana* var. *apicalis* N. E. Brown, Gard. Chron., vi. 684. 1889.

(Description by Dr. Brown, Flora Cap., iv. i. 942):

Stems: "very large" (*Pillans*);

Corolla: lobes with the apical $\frac{1}{3}$ to $\frac{1}{2}$ without hairs on their inner surface, sometimes marked with transverse yellow lines nearly to the tips;

Otherwise as in the type.

Type locality: Cape Prov.: Somerset East Distr.: Great Fish River.

Distribution: Also from Aberdeen Distr.: near Aberdeen; Cradock Distr.

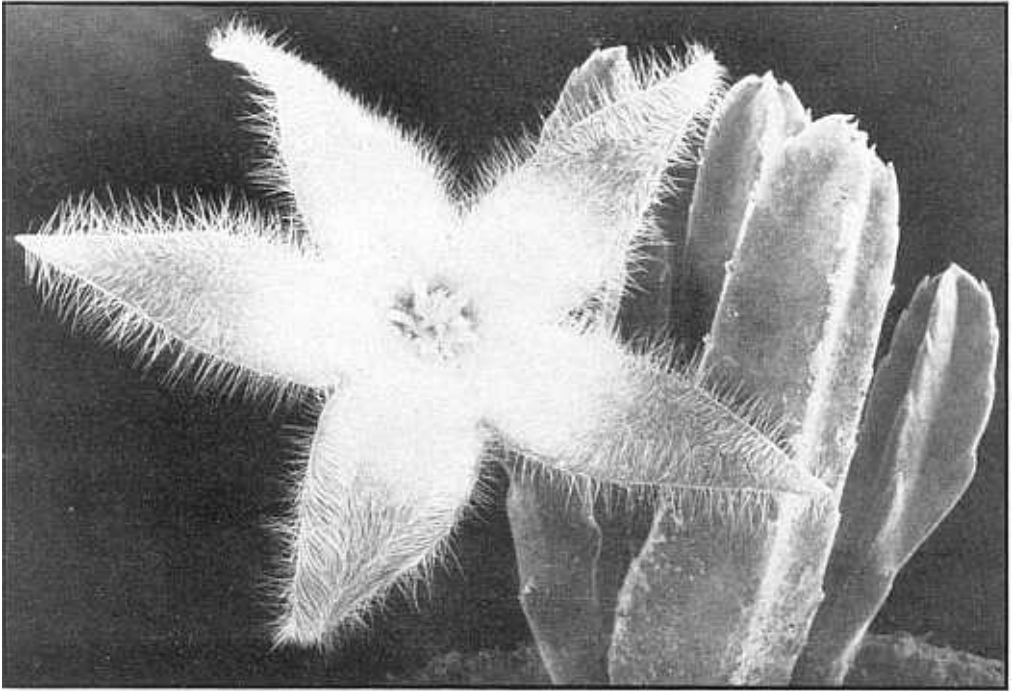


FIG. 508

Stapelia desmetiana var. *pallida* N. E. Brown x 1

Photo by T. N. Leslie.

Var. b. *Stapelia desmetiana* var. *pallida* N. E. Brown, Flora Cap., iv. i. 942. 1909.

(Description by Dr. Brown, l.c.):

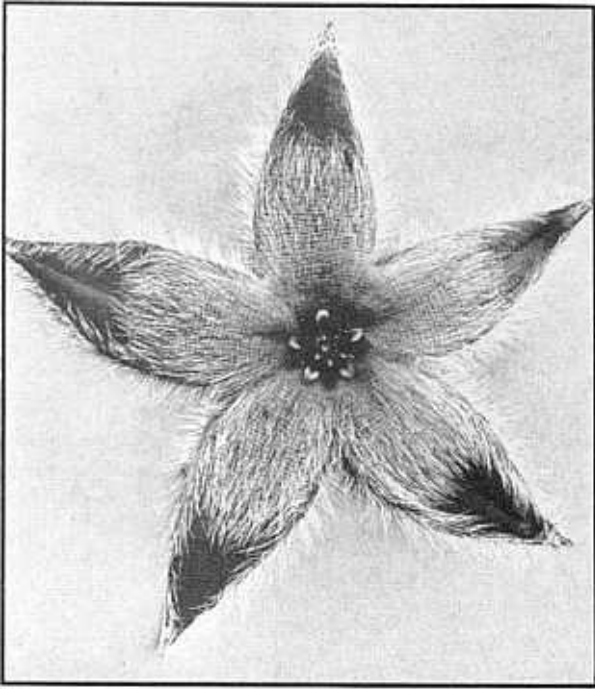
Plant: "forming clumps sometimes yards across" (*Pillans*); *stems* erect, shortly decumbent at the base, very stout, 9 to 10 in. long, $1\frac{1}{4}$ to $1\frac{1}{2}$ in. square;

Corolla: $5\frac{1}{2}$ to 6 in. in diameter, with the apex and margins of the lobes purple, the remainder of the lobes and whole of the disk pale greenish-yellow without markings of any kind; hairs pale greyish or whitish;

Outer corona: lobes light purplish on the sides with the acuminate tips and a line down the middle yellowish;

Inner corona: lobes dull purple or purple-brown at the base, yellowish above, with the deltoid acute dorsal wing nearly or quite free to the base;

Otherwise as in the type.



Type locality: Cape Prov.: Willowmore Distr.: between Willowmore and Klipplaat.

Distribution: Not further known.

FIG. 509

Stapelia desmetiana var. *pallida*
N. E. Brown

Photo by Herbert Lang.

Var. c. *Stapelia desmetiana* var. *fergusoniae* R. A. Dyer, Rec. Alb. Mus., iv. 116. 1931.

(Description by Mr. Dyer, l.c.):

Stems: 3 to 7 in. high, 4-angled, pubescent;

Corolla: when expanded $4\frac{1}{2}$ in. in diameter; lobes $1\frac{3}{4}$ in. long, 1 in. broad at the base, ovate, ciliate, densely covered with long white silky hairs nearly to the tips, and directed to the tips, almost appressed, surface smooth, not at all rugose, soft in texture, lemon-yellow turning greenish-yellow with age;

Outer corona: lobes ligulate, truncate or mucronate, canary-yellow;

Inner corona: lobes with the inner horn appreciably exceeding the wing, canary-yellow.

Type locality: Cape Prov.: Colesberg Distr.: a few miles south of Colesberg.

Distribution: Not further known.

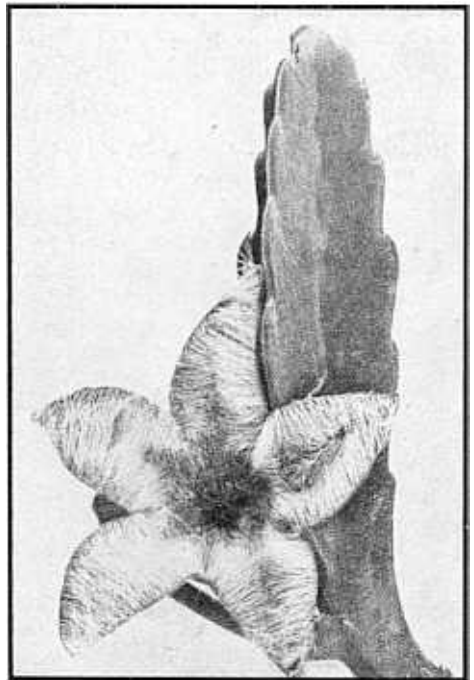


FIG. 510

Stapelia desmetiana var. *fergusoniae* Dyer x 0.5

From photo by R. A. Dyer in Records of the Albany Museum, 1931.

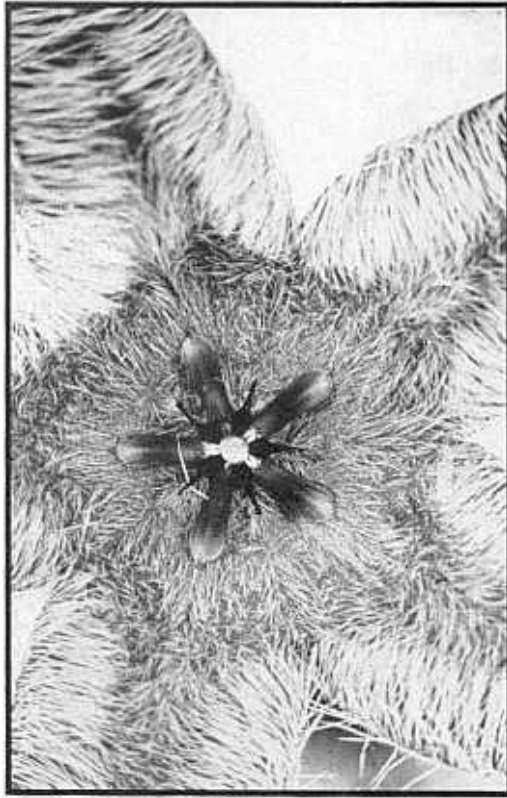


FIG. 511

Stapelia senilis N. E. Brown x 1.555. *Stapelia senilis* N. E. Brown, Flora Cap., iv. i. 940. 1909.

(Description by Dr. Brown, l.c.):

Stems: 1 ft. high and much like those of *S. conformis* (Pillans);*Pedicel*: short, $\frac{1}{2}$ in. long, 2 lin. thick, velvety;*Sepals*: 4 lin. long, lanceolate, acute, velvety;

Corolla: $4\frac{1}{2}$ to 5 in. in diameter with the lobes extended, velvety-puberulous on the back, transversely rugulose on the inner face, with the disk and lower two-thirds of the lobes light purple with very numerous narrow crowded transverse light yellowish or straw-colored lines not extending to the margins, and the apical third dull purple or purple-brown with a small ochreous or greenish patch at the apex; *disk* depressed at the centre and together with the basal half or rather more of the lobes thickly covered with very fine soft simple pure white hairs $\frac{1}{4}$ in. or more long; *lobes* recurving, $1\frac{3}{4}$ to 2 in. long, 1 to $1\frac{1}{3}$ in. broad, lanceolate, acute, ciliate with long simple white hairs, much stouter and longer than those on their face, part of them directed inwards;

Outer corona: lobes ascending-spreading with recurving tips, about $\frac{1}{4}$ in. long, linear, acuminate, concave down the face, dark purple-brown with paler (ochreous or whitish?) margins;

Inner corona: lobes ascending-spreading, dark purple-brown, perhaps slightly paler at the tips, with the dorsal wing $2\frac{1}{2}$ to $3\frac{1}{2}$ lin. long, adnate from $\frac{1}{4}$ to $\frac{2}{3}$ of its length to the inner horn, with the free part scarcely 1 lin. broad at the base, thence tapering to an acute apex, entire or with a tooth on the inner margin; inner horn 5 to 6 lin. long, triquetrous-subulate, acute, rather straight and parallel with the dorsal margin of the wing below, slightly recurved at the apex.

Type locality: Cape Prov.: perhaps collected in the Albany Distr.

Distribution: Unknown.

Stapelia senilis, whose name may be paraphrased as "Old Lady Stapelia," is certainly, as Mr. Pillans once wrote, one of the most remarkable *Stapelias* for color. "At a distance," he said, "it looks as though it had been finely sprinkled with flour." The stems are tall, a foot high, and resemble those of *S. conformis*. The flowers have a light purple corolla, crowded with light yellowish lines which do not extend to the edges of the lobes. The tips of the lobes are dull purple with a greenish spot at the apex. Their basal half and the disk are thickly covered with pure white hairs. Dr. Brown says that these hairs are much softer and finer than those of *Stapelia desmetiana* var. *apicalis*, which *S. senilis* otherwise somewhat resembles when its flowers are dried. It is a plant of uncertain origin. It was first cultivated in the Grahamstown Botanic Garden, and is thought

to have come from the coast region of the Cape, in the Albany District.

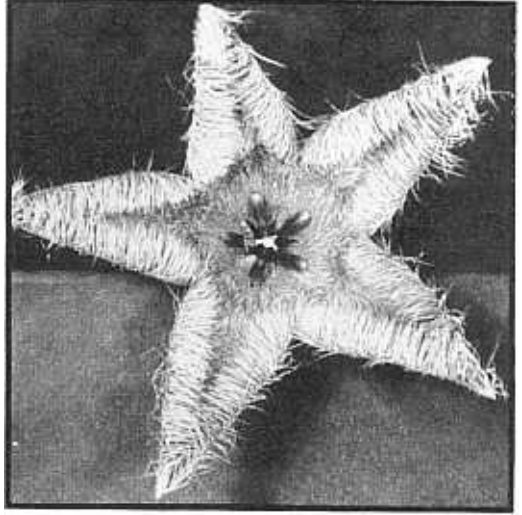


FIG. 512

Stapelia senilis N. E. Brown x 0.5

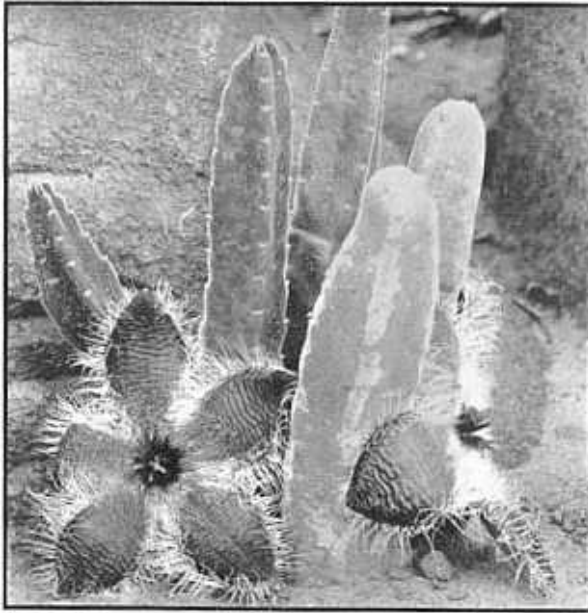


FIG. 513

Stapelia flavirostris N. E. Brown x 0.3

Photo by S. Tapscott.

56. *Stapelia flavirostris* N. E. Brown, Gard. Chron., vii. 558. 1877.*Stapelia grandiflora* var. *lineata* N. E. Brown, Gard. Chron., vii. 553. 1877.

(Description by Dr. Brown, Flora Cap., iv. i. 942):

Stems: erect, rather crowded, 4 to 7 in. high, $\frac{3}{4}$ to $1\frac{1}{4}$ in. square, with compressed angles and concave sides, distinctly toothed, with erect rudimentary leaves 1 to 2 lin. long, green, with a distinctly visible dense velvety pubescence;

Flowers: solitary or 3 together on a short stout peduncle, the two lateral (under cultivation) usually not developing, near the base of the young stems;

Pedicel: $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, 2 to $2\frac{1}{2}$ (in fruit 5 to 6) lin. thick, velvety;

Sepals: 5 to 7 lin. long, lanceolate, acute, velvety;

Corolla: in bud ovoid, obtuse and slightly depressed at the apex; when expanded $5\frac{1}{2}$ to $6\frac{1}{2}$ in. in diameter with the lobes extended, velvety on the back; inner surface everywhere transversely rugose, with the apical $\frac{2}{3}$ of the lobes glabrous and the basal part and disk covered with erect soft simple purple hairs, dull purple-red on the disk, marked with transverse pale yellow and dull purple lines on the basal half and entirely very dark purple-brown on the apical half of the lobes, the dark color extending towards the base in a broad triangle; lobes 2 to $2\frac{3}{4}$ in. long, 1 to $1\frac{1}{4}$ in. broad, lanceolate, acute, somewhat narrowed at the base, much recurved, ciliate to their tips with long simple hairs, half directed inwards and usually pale purple, the others white;

Outer corona: lobes ascending-spreading, recurved at the tips, $2\frac{1}{2}$ to 3 lin. long, linear; linear-lanceolate or linear-oblong, acute, concave down the face, dull reddish-brown or dull purple at the base, ochreous at the apex;

Inner corona: lobes ascending-spreading, pale yellow or ochreous-yellow shading into dark purple-brown at the base, with the dorsal wing adnate usually from $\frac{2}{3}$ to wholly (rarely for $\frac{1}{2}$ or less) to the inner horn, very rarely free nearly or to the base, 2 to 4 lin. long, usually $1\frac{1}{2}$ to 2 (rarely 1) lin. broad, entire, obtuse to truncate, rarely acute or toothed at the apex; inner horn 3 to 5

lin. long, triquetrous-subulate, acute or 3-toothed at the apex, varying from scarcely longer than to twice as long as the wing, nearly straight or slightly recurved at the tips;

Follicles: parallel, 6 to 7 in. long, $\frac{1}{2}$ in. thick, terete, tapering to the base and to the incurved-hooked apex, velvety-pubescent.

Type locality: Cape Prov.: Prince Albert Distr.: New Hantam?

Distribution: Widely distributed from the Orange Free State to Griqualand West; Basutoland; Little Namaqualand; and to the south coast region, between George and Oudtshoorn. Found, among others, in Somerset East; Beaufort West; Victoria West; Richmond; Middelburg; Steynsburg; Colesberg; Bedford; Queenstown; Tarka; Aliwal North; Burghersdorp; Cradock; Carnarvon; Ladismith; and Oudtshoorn districts.

At first Dr. Brown considered *S. flavirostris* to be a variety of *S. grandiflora*, from which it differs in the flowers being less hairy and more prominently banded with transverse lines. However, the inner corona is so distinctive that he later raised the plant to specific rank. Its name, the "yellow-beaked Stapelia," refers to this coronal form, featured by the unusual yellow color of the upper part of the inner corona-lobes and by their wide dorsal wing.

The whole plant is a noteworthy one. The tall velvety stems, the large flowers, the rich ciliation of the corolla with purple and white hairs, all combine to produce a showy effect. It is a free grower and liberal bloomer in cultivation.

The Sesuto (Basutoland) name for *S. flavirostris* is *Bobatsu*. It is also widely known as *Slang Ghaap* and is prized by the natives as a cure for snake bites (see Appendix C). For curing numbness, the limbs are bathed with a hot infusion of the plant. It was probably first collected by J. F.

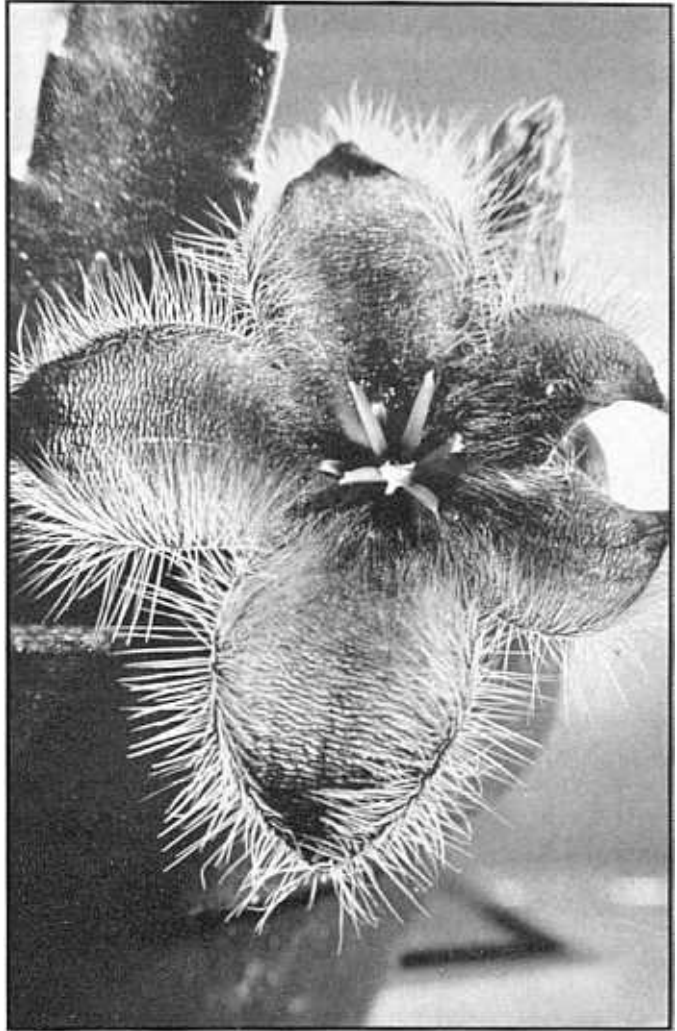


FIG. 514

Stapelia flavirostris N. E. Brown x 1.

Drège about 1830, and was introduced to the Royal Botanic Gardens, Kew, by Sir

FIG. 515

Stapelia flavirostris N. E. Brown x 0.3

Photo: G. W. Reynolds, Johannesburg, of a plant in natural surroundings at the foot of a kopje, 3 miles south-west of Tarkastad, C. P.

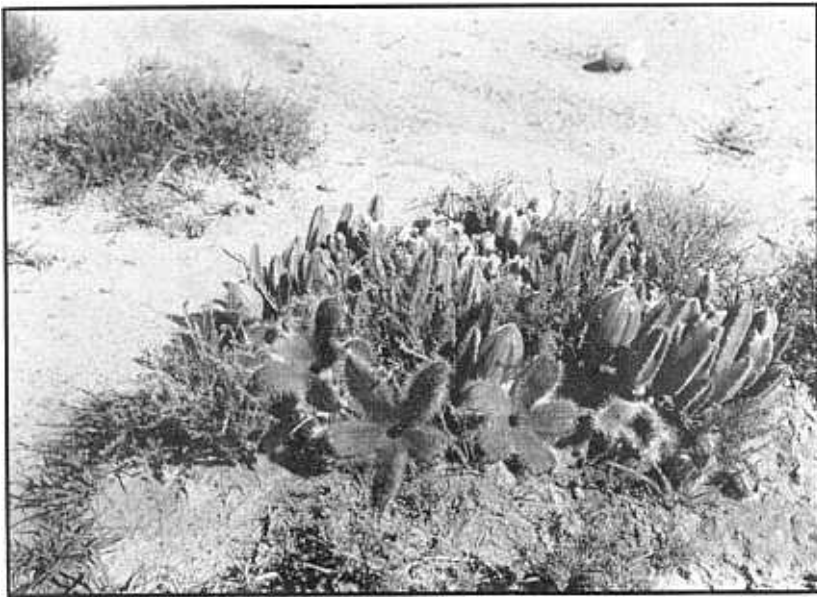
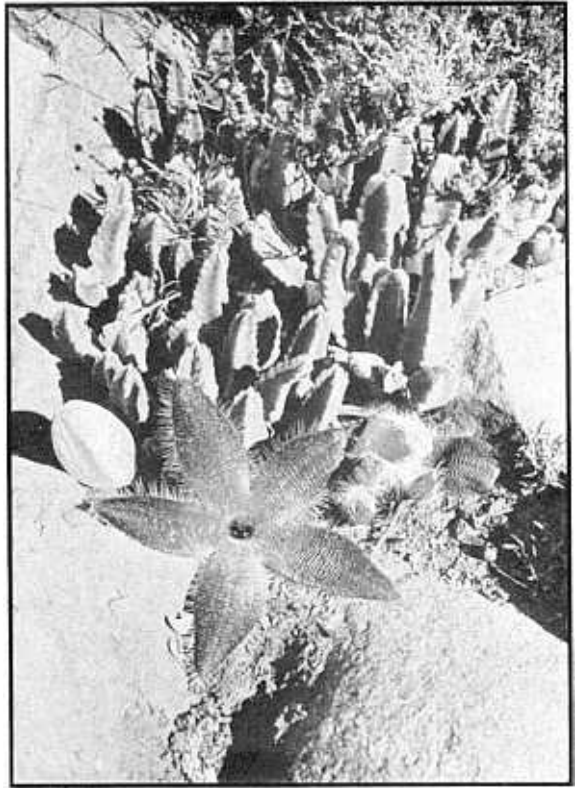


FIG. 516

Stapelia flavirostris N. E. Brown x 0.2

Photo: G. W. Reynolds, of a plant in natural surroundings near Middleton, Somerset East district.



FIG. 517

Stapelia flavirostris N. E. Brown x 0.25

Photo by James West.

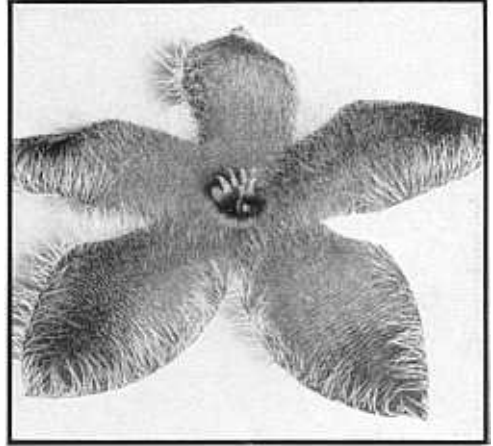


FIG. 518

Stapelia flavirostris N. E. Brown x 0.5

Henry Barkly about 1875. Its range covers many points between the 29th and 34th south parallels. Mr. Pillans, who collected it between George and Oudtshoorn, at the very south of the Cape Province, says: "This is the most southern point from which I have had the species. The stems of this form are narrow and elongated, resembling those of *S. asterias* var. *lucida*, so

the growth is influenced by the heavy rainfall."

Referring to the insect visitors of the species, Miss M. Wilman writes: "Even before the flowers of *S. flavirostris* open, the carrion flies are on the alert, and when the flowers open they are joined by chrysomelid beetles. These beetles I have not seen on other species of STAPELIEAE. The flies, of course, are always on hand."



FIG. 519

Stapelia flavirostris N. E. Brown x 0.25

Plant growing in natural surroundings near Tarkastad, C. P.

Photo: G. W. Reynolds, Johannesburg.

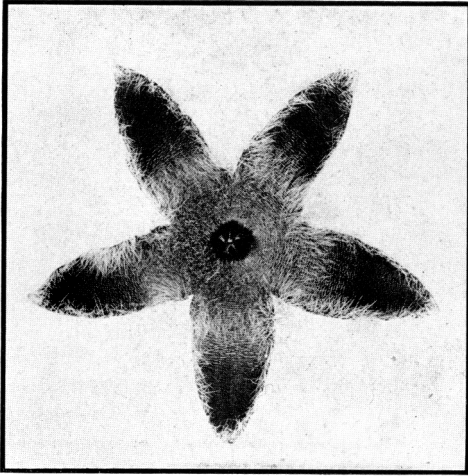


FIG. 520

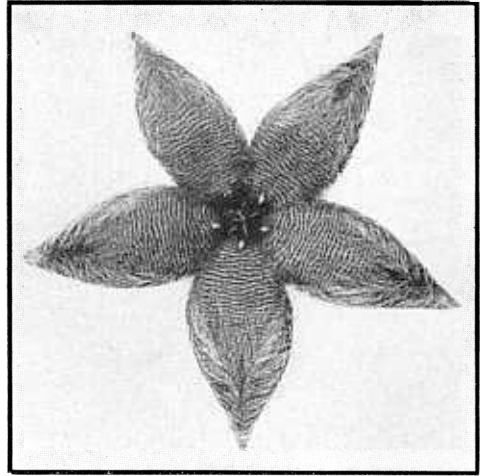
Stapelia flavirostris N. E. Brown

FIG. 521

Stapelia desmetiana N. E. Brown

In certain localities *S. flavirostris* and *S. desmetiana* meet and grow together socially, and perhaps hybridize, as suggested in connection with Fig. 506.

The photographs on this page, all taken by G. W. Reynolds at Bruintjes Hoogte, 20 miles west of Somerset East, are of special interest in this regard. Miss Verdoorn writes: "Fig. 520 certainly represents *S. flavirostris*, and Figs. 521 and 522

are probably *S. desmetiana*. In the two latter, note the elegant manner the corolla lobes taper to an acute point. In *S. flavirostris* the lobes narrow more abruptly and the point usually turns down. Note also that the hairs cover the disk and extend almost to the tips of the lobes, whereas in *S. flavirostris* the hairs extend only to the base of the lobes."

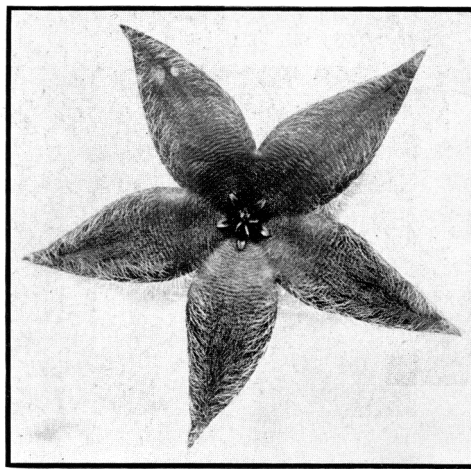


FIG. 522

Stapelia desmetiana N. E. Brown

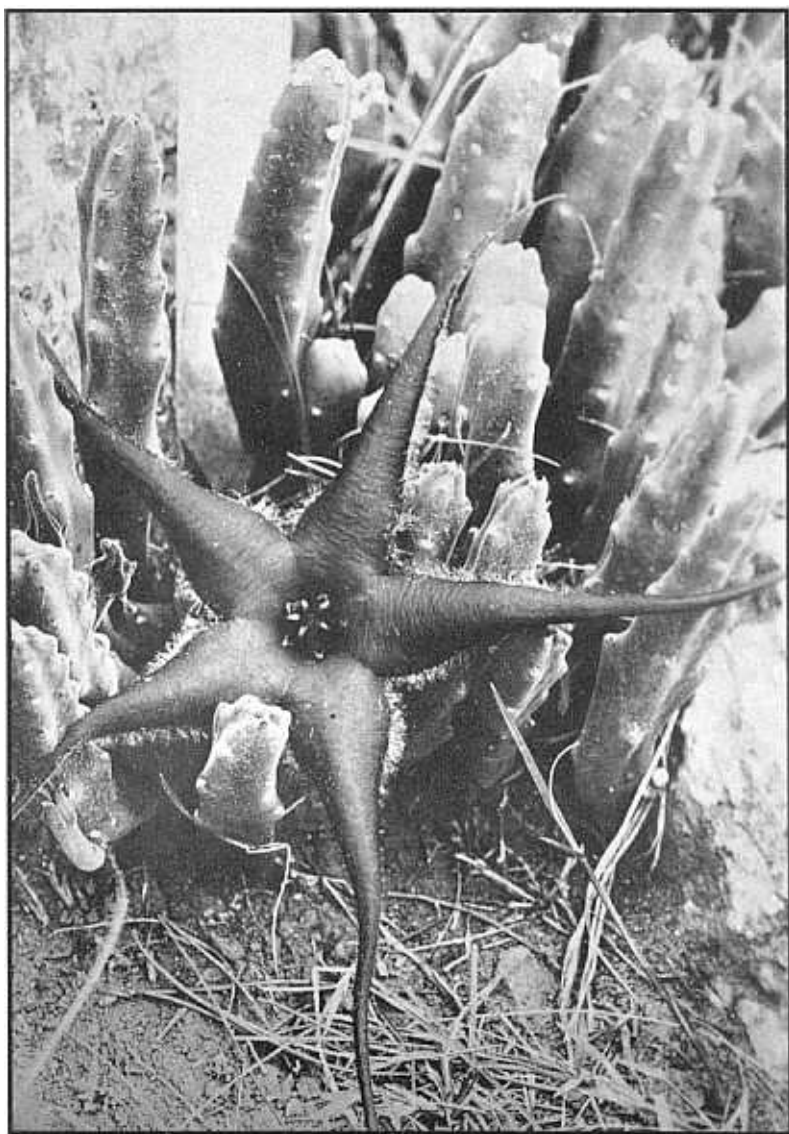


FIG. 523

Stapelia pillansii N. E. Brown x 0.9

Photo by T. N. Leslie.

57. *Stapelia pillansii* N. E. Brown, Gard. Chron., xxxv. 242. 1904.

(Description by Dr. Brown, Flora Cap., iv. i. 958):

Stems: rather crowded, 4 to 5½ in. (5 to 7 in., *Pillans*) high, 6 to 10 lin. (¾ to 1 in., *Pillans*) square, with concave sides and angles not much compressed, velvety-pubescent, green; teeth not very prominent, with erect appressed rudimentary leaves 1 to 1½ lin. long;

Flowers: 2 to 5 together near the base of the stems and 2 or more sometimes open at the same time;

Pedicel: ½ to 1½ in. long, 1½ to 2½ lin. thick, velvety;

Sepals: about 4 lin. long, lanceolate, acute or acuminate, velvety;

Corolla: in bud long-acuminate from a narrowly pentagonal-ovoid base, not twisted; when expanded 4 to $5\frac{1}{2}$ in. in diameter with the lobes extended, velvety-puberulous on the back, smooth to slightly transversely rugose and glabrous on the inner face, purple-brown, without markings, shining, densely ciliate with soft light purple simple hairs, which are shorter and fewer and become absent towards the tips; *disk* flattish, depressed at the centre; *lobes* $1\frac{2}{3}$ to $2\frac{1}{3}$ in. long, 7 to 9 lin. broad, lanceolate, attenuate into tail-like tips, variably spreading or recurved, not revolute at the margins;

Outer corona: variable, blackish, shining, either of 10 free ascending lobes, $2\frac{1}{2}$ lin. long, 5 of them alternating with the inner corona-lobes, flattish, oblong or oblong-obovate, 1 to $1\frac{1}{2}$ lin. broad at the top, which is abruptly acuminate or somewhat 3-toothed or abruptly rounded into a short central obtuse point, 5 others at the back of and appressed to or united with the inner corona-lobes, about $\frac{3}{4}$ lin. broad, linear or oblong-linear, obtuse, truncate, notched or bifid at the apex; or the 5 lobes alternating with the inner corona-lobes narrower and oblong, and alternating with 5 pairs of filiform teeth; or of 5 very deeply trifold lobes with filiform lateral segments; or all the lobes connate at the basal part into a cup, divided above into 5 regularly 3-toothed or irregularly several-toothed lobes;

Inner corona: lobes about 3 lin. long, blackish, shining, with the dorsal wing $1\frac{1}{2}$ lin. broad, adnate for $\frac{1}{2}$ to $\frac{2}{3}$ of its length to the inner horn, its free part oblong or rounded, very obtuse, entire or obscurely crenulate; inner horn recurving, very stoutly triquetrous, acute to subobtuse, slightly longer than the dorsal wing;

Follicles: when dried subparallel, 6 in. long, puberulous; *seeds* $2\frac{1}{4}$ lin. long, $1\frac{1}{4}$ lin. broad, ovate, with thick incurved margins on one side, convex on the other, smooth, glabrous, light brown.

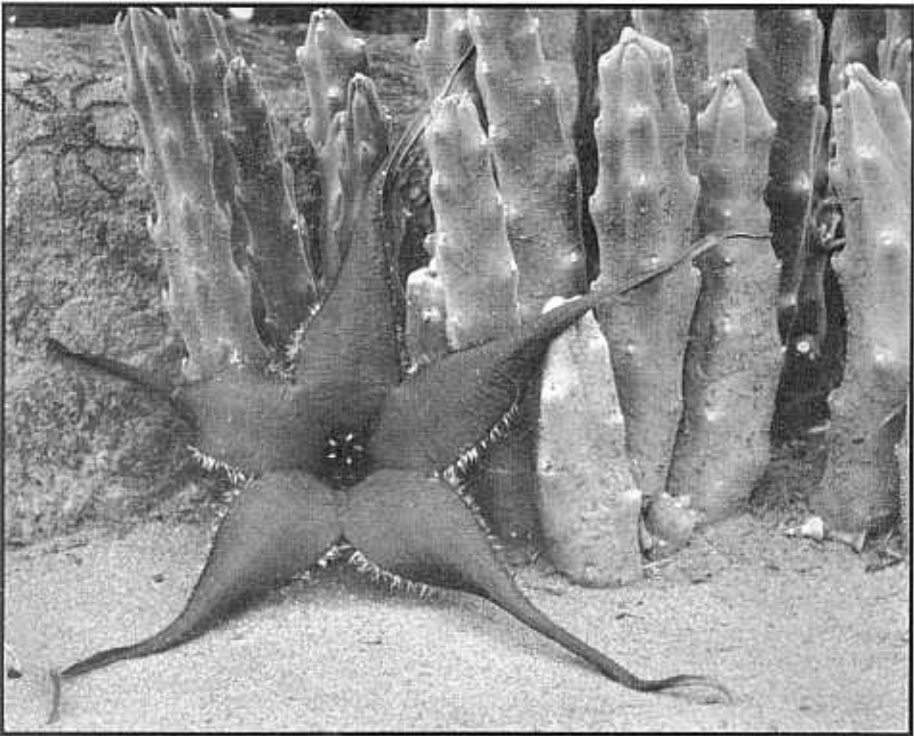


FIG. 524

Stapelia pillansii N. E. Brown x 1.

Photo by S. Tapscott.

Type locality: Cape Prov.: Laingsburg Distr.: near Matjesfontein.

Distribution: Also in Laingsburg Distr.: near Dwarsindeweg; Prince Albert Distr.: near Grootfontein.

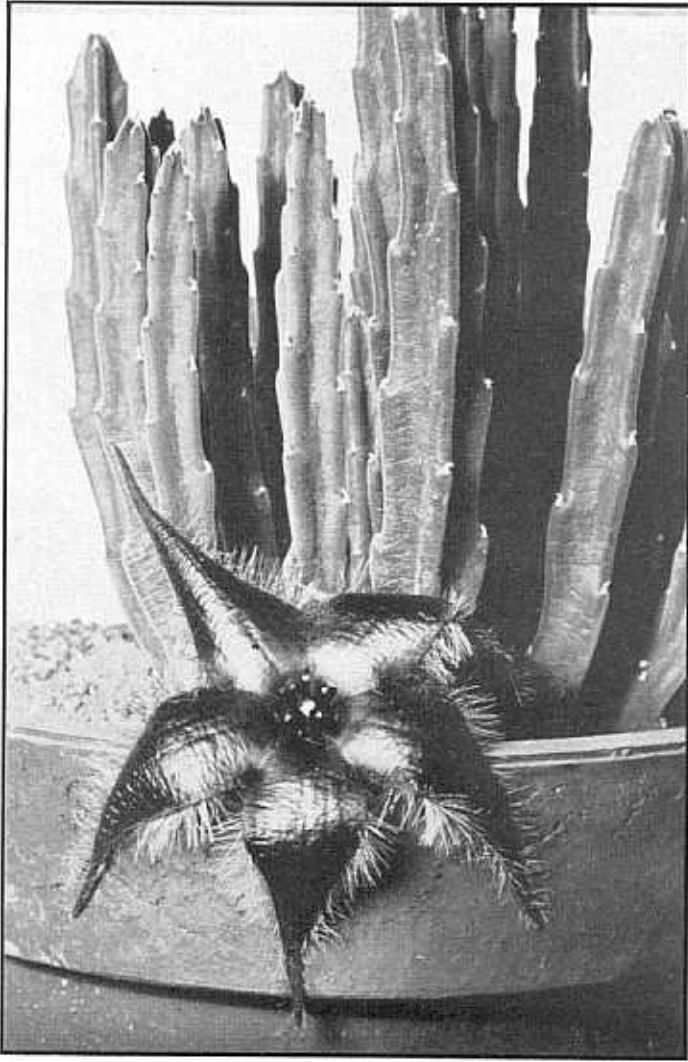


FIG. 525

Stapelia pillansii N. E. Brown x 0.75

The "Pillans Stapelia" is named for Mr. Pillans, who discovered it in the westerly Great Karroo about 1903. It is one of the most remarkable *Stapelias*, because of the attenuation of the corolla-lobes of the 5-inch flowers, the tips of the lobes "tail-like," according to the simile of Dr. N. E.

Brown. In the variety *attenuata* (flowers up to 8 inches) this feature becomes even more extraordinarily pronounced, as is beautifully shown in the Luckhoff studies of the unfolding of a bud. (Figs. 526-528).

The corolla of *S. pillansii* is of a silken sheen, fringed with vibratile hairs, a lovely

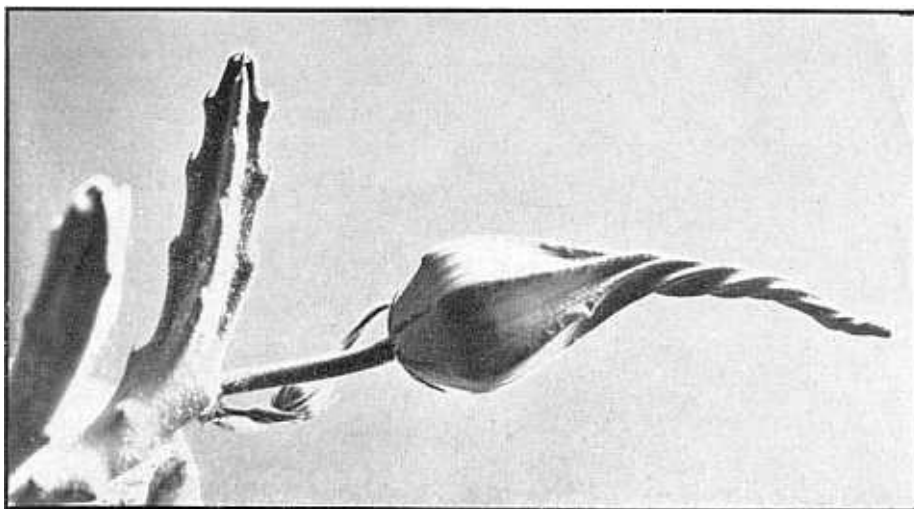


FIG. 526

Bud of *Stapelia pillansii* var. *attenuata* N. E. Brown x 0.9

Photo by Carl Luckhoff.

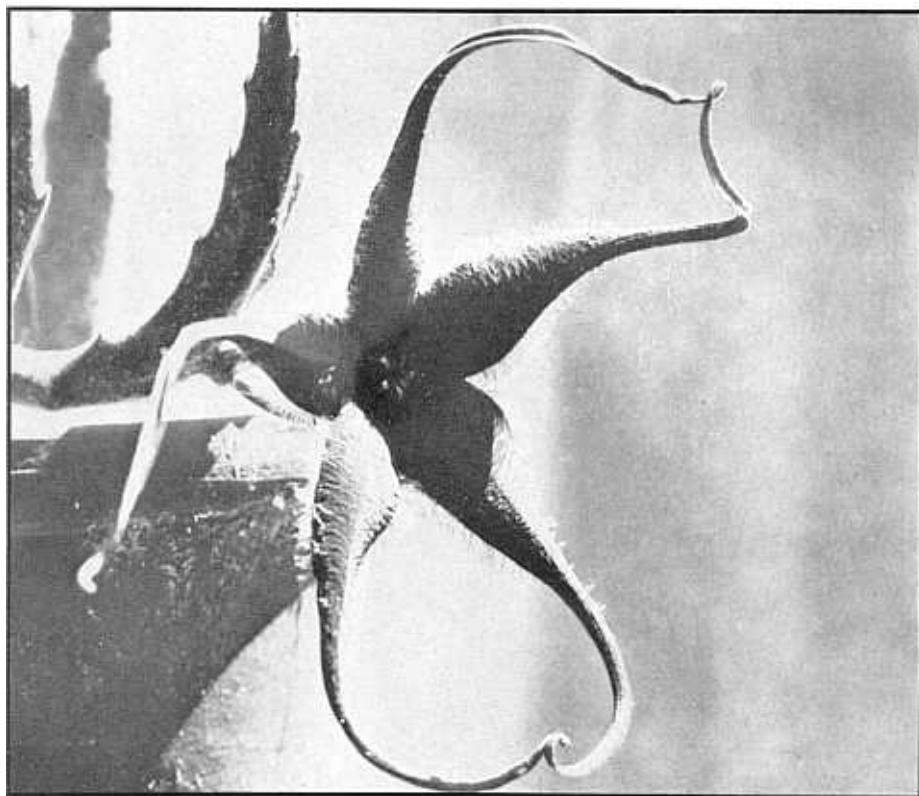


FIG. 527

Opening flower of *Stapelia pillansii* var. *attenuata* N. E. Brown x 0.9

Photo by Carl Luckhoff.

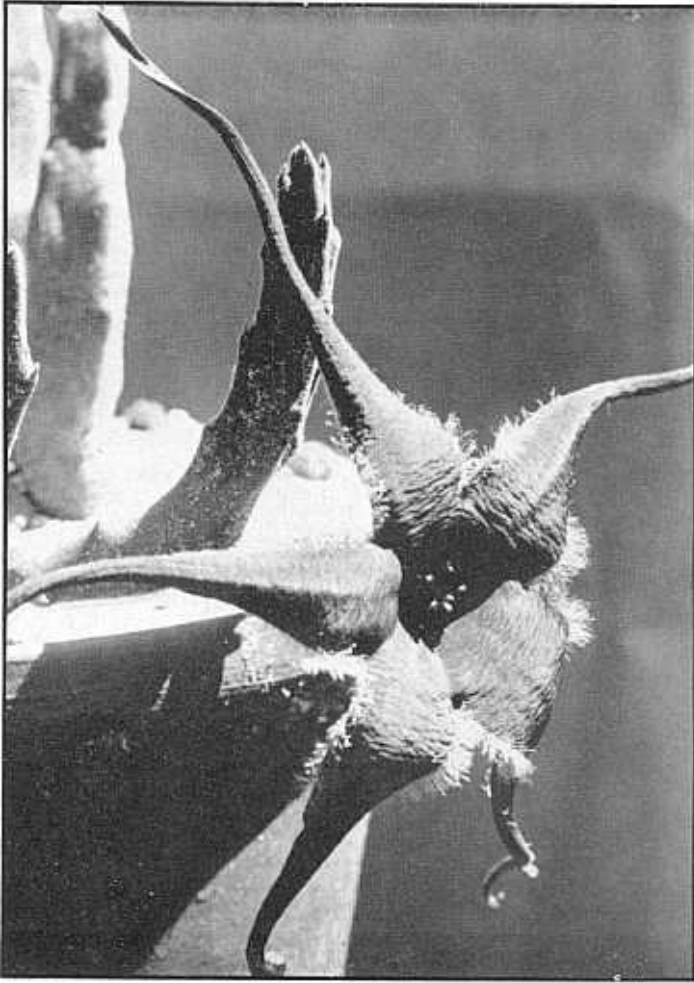


FIG. 528

Expanded flower of *Stapelia pillansii* var. *attenuata* N. E. Brown x 0.9
Photo by Dr. J. Luckhoff.

thing, but with a repellant carrion-like odor. The corona is unlike that of any other *Stapeltonia*, very variable in structure and at times revealing the almost complete adoption of a *Caralluma* pattern in the cup-like intergrowth of the normally 3-toothed outer corona-lobes, which at other times are free to their base, and in a toothed

dorsal production of the inner corona-lobes, which then become adnate to the outer corona.

A color variety (*S. pillansii* var. *fontinalis* Nel, var. nov.), with corolla beautiful lemon yellow, occurs in the Laingsburg district, near Whitehill (Mr. Archer) and Matjesfontein (J. D. Logan).

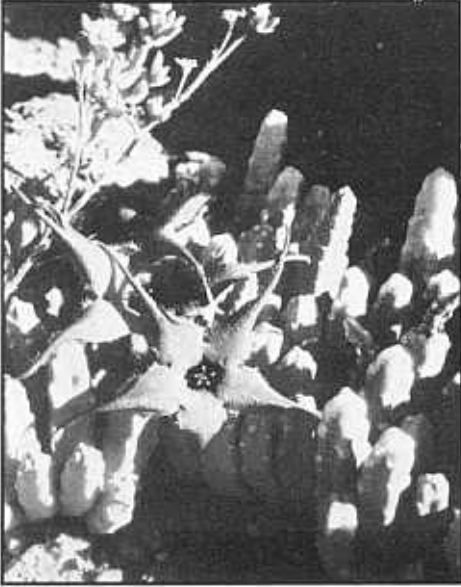


FIG. 529

Stapelia pillansii N. E. Brown x 0.33
Photo by R. H. Compton.

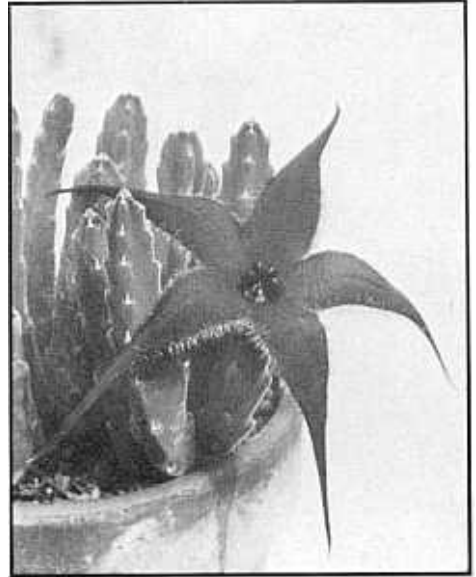


FIG. 530

Stapelia pillansii N. E. Brown x 0.6
From the collection of Soldena Gardens.

Var. a. *Stapelia pillansii* var. *attenuata* N. E. Brown, Flora Cap., iv. i. 958. 1909.

(Description by Dr. Brown, l.c.):

Corolla: in bud twisted at the apex; when expanded $6\frac{1}{2}$ to 8 in. in diameter, with the lobes $2\frac{3}{4}$ to $3\frac{1}{2}$ in. long, with very long tapering points; otherwise as in the type.

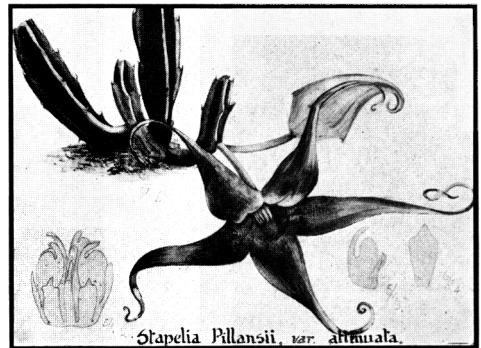
Type locality: Cape Prov.: Laingsburg
Distr.: by the road at Witte Poort.

Distribution: Also in Laingsburg Distr.: near Matjesfontein.

FIG. 531

var. *attenuata* N. E. Brown

From the original water color drawing by Miss K. A. Lansdell for the Flowering Plants of South Africa, 1922.



Stapelia schinzii

58. *Stapelia schinzii* Berger et Schlechter, Nat. Gesel. Zürich, iv. 491. 1909.

(Description by Dr. E. P. Phillips, Flow. Pl. So. Afr., t. 457. 1932):

Plant: about 6 cm. high; *stems* 4-angled. 1.5 to 2 cm. broad including the teeth; in young growths the teeth ending in small ovate-acuminate leaves;

Flowers: solitary, arising from the base of the young stems;

*Pedice*l: 2.5 cm. long, 5 mm. in diameter, softly pubescent;

Sepals: 8 mm. long, 2 mm. wide, lanceolate, softly pubescent;

Corolla: 11 to 12 cm. in diameter when fully open; *tube* shallow, slightly rugose; *lobes* 4.5 cm. long, 1.8 cm. broad, ovate, long-acuminate, with the tips recurved and reflexed, ciliate with clavate hairs; densely rugose; the groundwork of the corolla is a dull green, but the transverse ridges are red, and so close together that the corolla has the appearance of being dull red, becoming greener towards the smoother tips of the lobes;

Corona: 1 cm. high, 0.9 to 1 cm. in diameter;

Outer corona: lobes spreading, wine-red in color, 4 mm. long, 1.5 mm. broad, oblong, acute;

Inner corona: lobes consisting of a filiform inner horn, dark red tipped with white, 8 mm. high, with a wine-red dorsal wing almost as long as the inner horn.

Type locality: Bechuanaland Protectorate: Kalahari: near Lake Ngami.

Distribution: Also frequent in many parts of South West Africa from Hereroland to Great Namaqualand, including Okahandja, Omaruru, Omburo, Windhoek, Rehoboth, Keetmanshoop, etc.

"Schinz's *Stapelia*" is a curious species, much sought after by fanciers because of the elongated and delicate corolla-lobes. The flowers vary greatly in size and are sometimes fully 9 inches in diameter. The

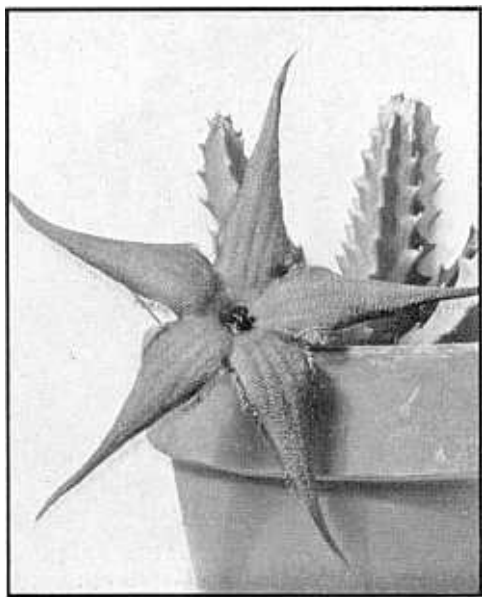


FIG. 532

Stapelia schinzii Berger et Schlechter x 0.5



FIG. 533

Stapelia schinzii Berger et Schlechter x
Flower visited by blow-flies. Photo by
R. H. Compton.

dark brown corolla is hairless, but the lobes are fringed with the most vibratile of clavate purple hairs. The stems are character-

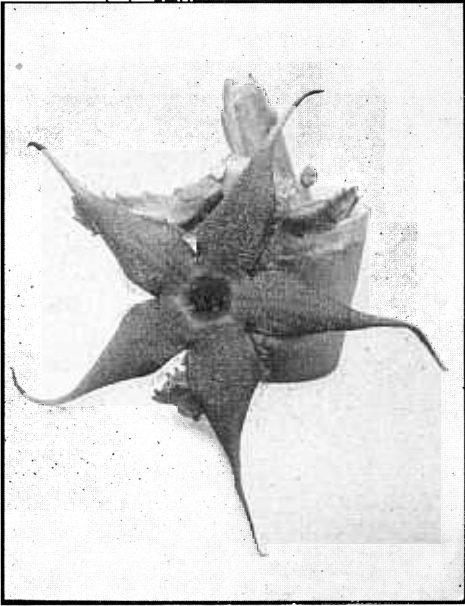


FIG. 534

Stapelia schinzii Berger et Schlechter
x 0.5

Photo by A. Probst and E. R. Svensson.
Note the unusual depth of the corolla-tube.

istic too, with their compressed angles, with horizontal or slightly sloping teeth, tipped with debonair little erect rudimentary leaves. This tropical species is named for Prof. Hans Schinz, who discovered it near Lake Ngami in 1886. It was not described as a new species, however, until 1909, after Prof. Dinter had collected it again in Hereroland, South West Africa. It is widely distributed in South West Africa, its complete range being nearly 500 miles. Prof. Dinter said he found the plants generally at the foot of small acanthaceous shrubs, beneath which the seeds had presumably been blown by the wind.

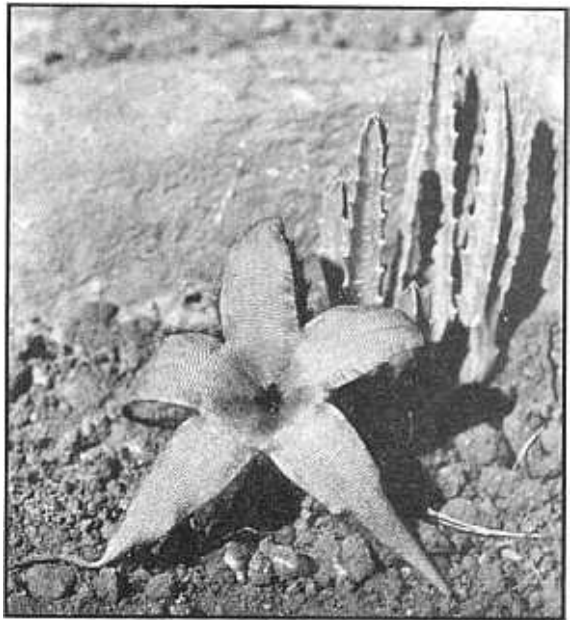


FIG. 535

Hybrid of *Stapelia schinzii*

Photo by S. Tapscott: "A hybrid seedling, from a seed-pod of *S. schinzii*. The flower is larger and more striking in appearance."

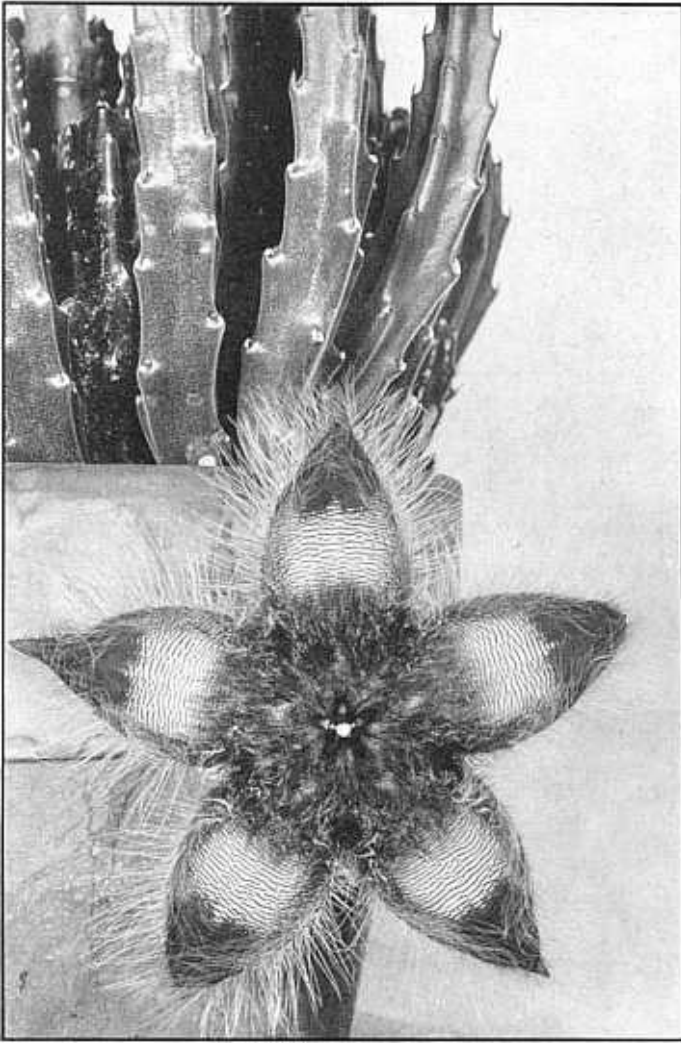


FIG. 536

Stapelia pulvinata Masson x 159. *Stapelia pulvinata* Masson, Stap. Nov., 13. 1796.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 935):

Plant: about 4 in. high, branching at the base; *stems* erect, decumbent at the base, 6 to 7 lin. square, with compressed angles having erect rudimentary leaves $\frac{1}{2}$ to 1 lin. long at the rather prominent teeth, softly pubescent, dull green;

Flowers: solitary near the base of the stems;

Pedicel: $1\frac{1}{2}$ to $2\frac{3}{4}$ (in fruit about 3) in. long, $2\frac{1}{2}$ (in fruit 4) lin. thick, velvety;

Sepals: 4 to 6 lin. long, $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. broad, lanceolate, acute, velvety;

Corolla: in bud flattened, with 5 depressions around the short conical point; when expanded 4 to $4\frac{1}{2}$ in. in diameter, minutely puberulous on the back; *disk* on the inner face and basal part of the lobes very densely covered with a thick cushion of fine soft purple hairs; *lobes* $1\frac{1}{2}$ to $1\frac{2}{3}$ in. long, 1 to $1\frac{1}{2}$ in. broad, roundish-oblong or ovate, usually rather abruptly contracted

into an obtuse point $\frac{1}{4}$ to $\frac{1}{3}$ in. long, below which they are remarkably concave on the back, so that the point is abruptly recurved and then directed outwards, rugose and glabrous on the inner face, but densely ciliate and bordered with long soft purple hairs, dark purple-brown, marked with transverse yellow lines on the basal two-thirds;

Outer corona: lobes ascending-spreading, $2\frac{1}{2}$ to 3 lin. long, $\frac{3}{4}$ to 1 lin. broad, lanceolate, or narrowly oblong-linear, acuminate or 3-toothed at the recurved apex, channeled down the face, dark purple-brown;

Inner corona: lobes ascending-spreading, 5 to $5\frac{1}{2}$ lin. long, fuscous or dark brownish-purple with (always?) dull ochreous tips, with the dorsal wing adnate for $\frac{3}{4}$ or wholly to the inner horn, $1\frac{1}{2}$ to 2 lin. broad, subacute to truncate and usually denticulate at the top; inner horn triquetrous to broadly winged-triquetrous, acute, obtuse or toothed at the apex, sometimes but shortly exceeding the dorsal wing;

Follicles: erect, 6 to 7 in. long, $\frac{1}{2}$ to $\frac{2}{3}$ in. thick, tapering into a long beak and into a stalk-like base about $\frac{3}{4}$ in. long, pubescent.

Type locality: Cape Prov.: Little Namaqualand: Kamiesberg range.

Distribution: Also at other points in Little Namaqualand, including Springbok; 14 miles north-west of Concordia; etc.

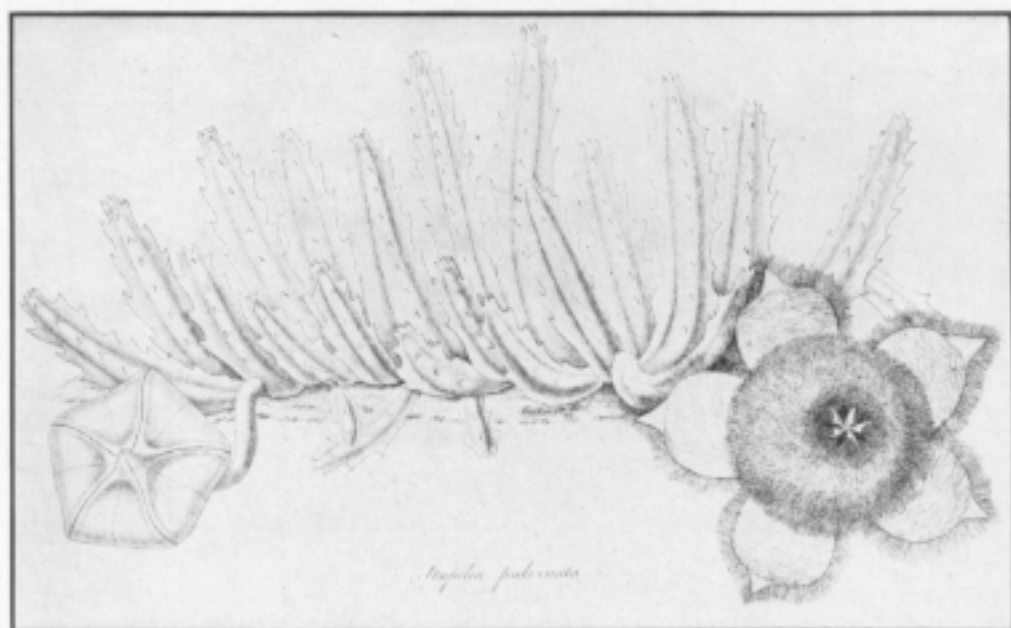


FIG. 557

Stapelia pulvinata Masson x 0.5

From Masson: *Stapeliae Novae*, 1796.

Stapelia pulvinata was discovered by Masson in 1792 on Mt. Kamies near Bowesdorp in Little Namaqualand and he says that the Dutch inhabitants called it "the Arabian Rose." Commenting on this in Curtis's Botanical Magazine, 1810, Dr. Sims adds: "the sense of smelling alone is, however, fully sufficient to expel every idea

of affinity with that fragrant genus." The "cushioned *Stapelia*" is remarkable for the thick cushion of soft purple hairs on the disk and base of lobes and for the dense fringe of similar hairs all around the lobes. The color is dark purple-brown, with yellow lines across the basal two-thirds of the lobes. The shape of the uniformly purple-

brown tips of the lobes has been likened by Berger to a Monk's hood. Dr. Brown described it by saying that the lobes are abruptly contracted into an obtuse point, below which they are so concave that the point is recurved and then directed outwards.

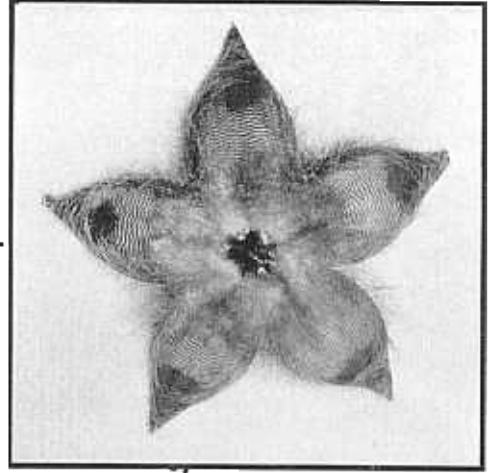


FIG. 538

Stapelia pulvinata Masson
x 0.75

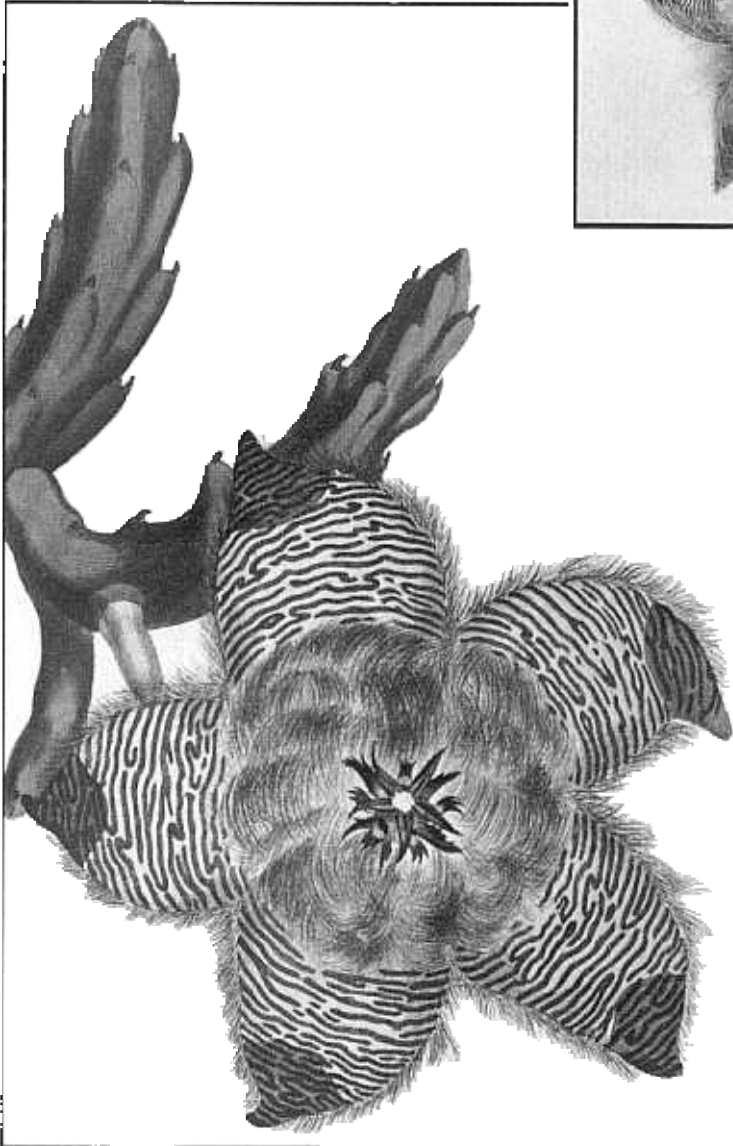


FIG. 539

Stapelia pulvinata Masson
From a drawing by Syden-
ham Edwards, in Curtis's
Botanical Magazine, 1809.

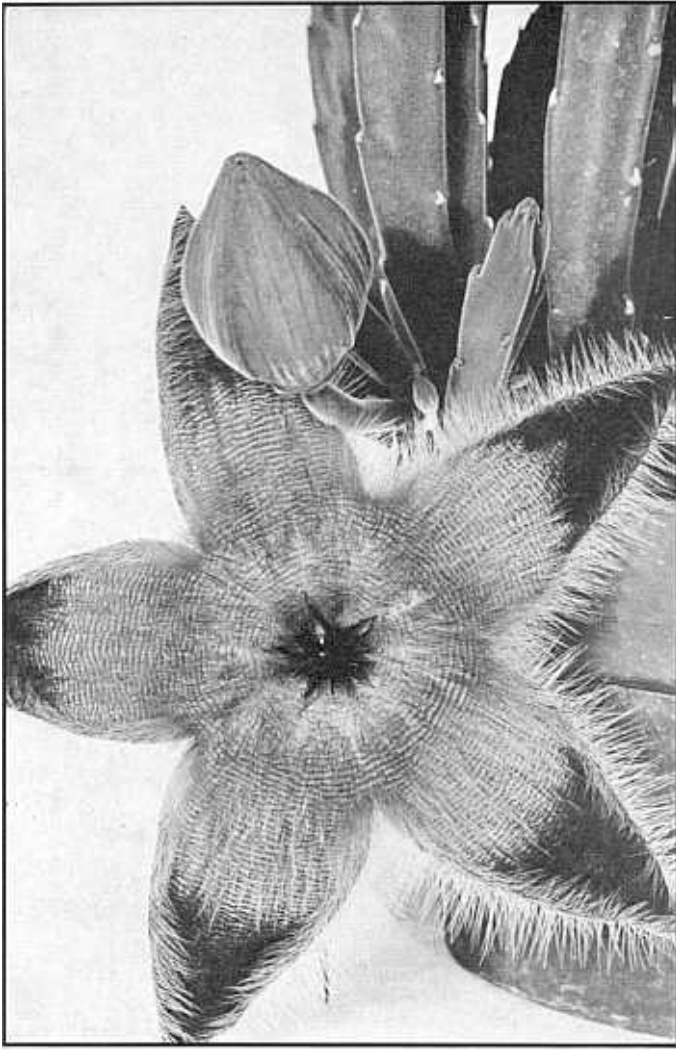


FIG. 540

Stapelia margarita Sloane x 160. *Stapelia margarita* Sloane, Stap., 1 Ed., 165. 1933.

(Description by Boyd L. Sloane):

Species in editione prima operis nostri depicta, *Stapeliae pulvinatae* proxima, a qua corollae centralis pubescentia quam maxime evoluta pilisque roseis mediam ipsam longitudinem loborum aequantibus recedit. Corona ab ea *S. pulvinatae* imprimis differt lobis coronae exterioris margine ochraceis.

Stems: 2½ to 5½ cm. high, 8 to 20 mm. square, erect, branching at the base; angles compressed with rudimentary leaves 2 mm. long and not very prominent teeth, softly pubescent, greyish-green;

Flowers: 1 to 2 near the base of the young stems, opening successively;

Pedice: 3 to 4 cm. long, 4 mm. thick, puberulous;

Sepals: 9 mm. long, 3 mm. broad, lanceolate, acuminate;

Corolla: in bud somewhat flattened; when expanded 11 cm. in diameter, minutely puberulous on

the back, disk and basal half of the lobes covered on the inner face with a cushion of very fine soft pink hairs pointing away from the corona; lobes 4 cm. long, $2\frac{1}{2}$ cm. broad at the base, ovate-lanceolate, acuminate, abruptly recurved, entire lobe rugose but glabrous only on the apical half, densely ciliate with simple white hairs 9 mm. long, half of which are directed inwards, disk and basal half of lobes cream color with tops of rugosities a very pale purple (the color of the disk shows through the cushion of pink hairs), apical half a solid reddish-purple with the rugosities of a darker reddish-purple;

Outer corona: lobes ascending-spreading, 7 to 8 mm. long, 2 mm. broad, lanceolate, acuminate, channelled down the face, reddish-purple with ochreous margins;

Inner corona: lobes ascending-spreading, 10 mm. long, deep reddish-purple with lighter reddish-purple tips, the dorsal wing adnate for its entire length to the inner horn, 4 mm. broad, denticulate at the top, inner horn triquetrous, acute, extending over and beyond the dorsal wing.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

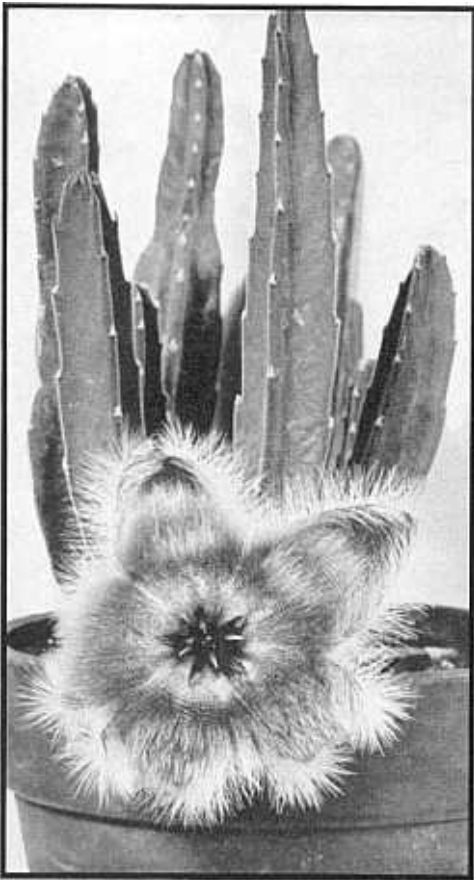


FIG. 541

Stapelia margarita Sloane x 0.5

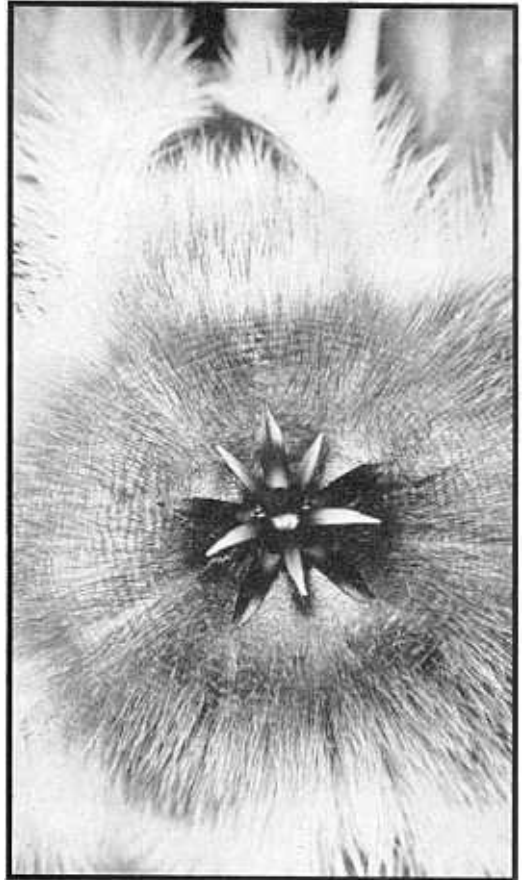


FIG. 542

Stapelia margarita Sloane x 2.

The species is related to *Stapelia pulvinata*, but its flowers possess an even more extraordinary central hair cushion. The

hairs are pink and extend half-way up the corolla-lobes, all directed away from the corona. Only the apical half of the lobes

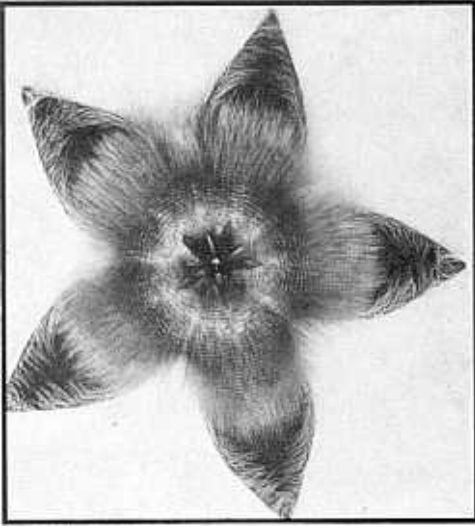


FIG. 543

Stapelia margarita Sloane x 0.5

is glabrous. The ciliation of the lobes is composed of simple white hairs, contrasting markedly with the purple fringe of *S. pulvinata*. The corona is similar to that of the older species, differing primarily in that the outer corona-lobes have an ochreous margin extending to their base. The name, *S. margarita*, is from the Greek: *margarites*, a pearl. It refers to the rare beauty of the flowers and was given in the first edition of this book by the junior author to commemorate the interest in all Stapeliads of Miss Margaret White of Litchfield, Connecticut. The type specimen is No. 182 in the White and Sloane collection. It was received from the McCabe Cactus Gardens in San Diego, which first grew the plant from South African seed. Its original habitat is not otherwise known.

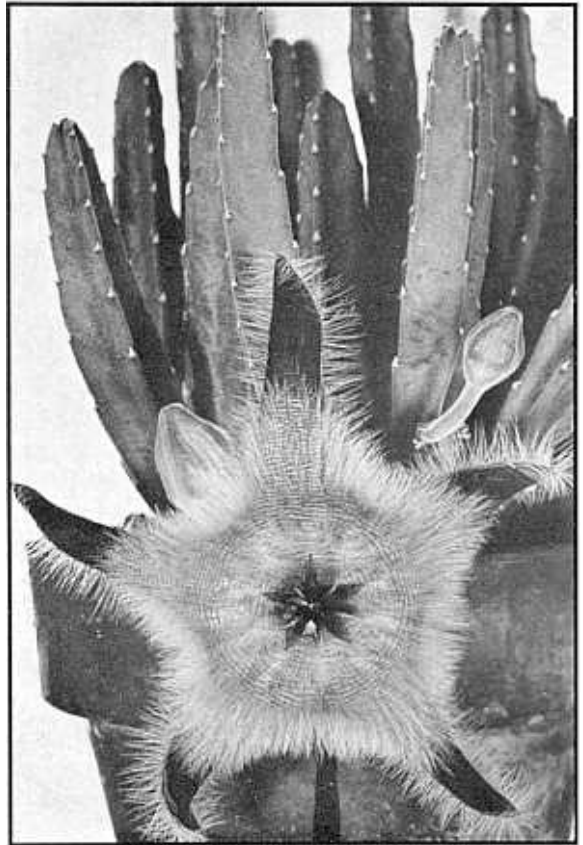


FIG 543-A

Stapelia margarita Sloane x 0.6

61. *Stapelia arnoti* N. E. Brown, Icon. Pl., t. 1915. 1890.

(Description by Dr. Brown, Flora Cap., iv. i. 947) :

Stems: erect, 3 to 8 in. high, $\frac{1}{2}$ to 1 in. square, pubescent, green; angles much compressed, with erect rudimentary leaves at the teeth;

Flowers: 2 to 3 or more together from near the base of the young stems, opening successively or in pairs;

Pedicel: about 1 in. long, stout, pubescent;

Sepals: about $\frac{1}{4}$ in. long, lanceolate, acute, pubescent;

Corolla: in bud very broadly ovate, obtuse, with a very short broadly obconical base; when expanded about 4 in. in diameter, with a flattish disk and much recurved or revolute lanceolate acute lobes $1\frac{1}{3}$ to $1\frac{1}{2}$ in. long and 9 to 10 lin. broad; disk and basal half of the lobes smooth, covered with pale purple (pink, *Barkly*) hairs, apical half of the lobes slightly rugose, glabrous, but ciliate like the basal part with long simple white hairs, half of them directed inwards, bright vinous-purple, without markings, with the tips of the lobes blackish;

Outer corona: lobes about $\frac{1}{4}$ in. long, $\frac{1}{2}$ to $\frac{2}{3}$ lin. broad, linear, acute or indistinctly 3-toothed, channeled down the face, recurving at the tips;

Inner corona: lobes erectly spreading, about $3\frac{1}{2}$ lin. long, with the dorsal wing adnate for more than half its length to the inner horn, its free part broadly deltoid, acute or obtuse; inner horn very stout, straight, triquetrous, acute.

Type locality: Cape Prov.: Griqualand West: without precise locality.

Distribution: Not further known.

"Arnot's *Stapelia*" was brought to Sir Henry Barkly during his Governorship at the Cape, 1870-77, from Griqualand West by David Arnot, after whom it is named. The species is clearly allied to *Stapelia grandiflora*, although the flowers are only about half the size. The corolla is smooth on the disk and basal half of the lobes, not deeply rugose as in *S. grandiflora*, uniformly purple in color with the tips of the lobes conspicuously black. The broad dorsal wing of the inner corona-lobes is adnate to the stout inner horn for more than half its length, while in *S. grandiflora* the wing is usually somewhat more free. The stems are not so stout and they are extremely velvety to the touch, with the angles much compressed.



FIG. 544

Stapelia arnoti N. E. Brown x 0.75
From Hooker's Icones Plantarum, 1890.

62. *Stapelia fuscopurpurea* N. E. Brown, Icon. Pl., t. 1913. 1890.

(Description by Dr. Brown, Flora Cap., iv. i. 946):

Stems: probably 5 to 8 in. high, $\frac{3}{4}$ to 1 in. square, softly pubescent, with the angles apparently much compressed and erect rudimentary leaves $\frac{1}{2}$ to 1 lin. long at the teeth;

Pedical: $\frac{3}{4}$ to 1 in. long, stout, pubescent;

Sepals: 3 to 4 lin. long, lanceolate, acute, pubescent;

Corolla: with the lobes spread out $3\frac{1}{2}$ to 4 in. in diameter, puberulous on the back, transversely slightly rugose on the inner face, uniformly dark purple-brown, without markings, densely covered with long soft purple hairs on the disk, ciliate with stiffer long purplish or whitish hairs to the tips of the otherwise glabrous lobes, which are reflexed, $1\frac{1}{2}$ in. long, 10 lin. broad, ovate-lanceolate, acuminate, with revolute margins;

Outer corona: lobes ascending, 3 lin. long, $\frac{2}{3}$ to $\frac{3}{4}$ lin. broad, linear, obtuse, with a minute apiculus at the recurved apex, concave down the face, with the sides somewhat inrolled as if pinched together at the middle, dark purple-brown;

Inner corona: lobes 4 to 5 lin. long, erect, blackish or dark purple-brown, with the dorsal wing entirely adnate to and about $\frac{1}{3}$ shorter than the inner horn, broad and wing-like, truncate and denticulate at the top; inner horn triquetrous, acute, recurved, hook-like.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

A plant of unknown South African origin. Sir Henry Barkly found it in cultivation at the Capetown Botanic Garden and sent a flower and a drawing to Kew in 1875. It is simply, as its name sets forth, a "dark purple *Stapelia*," the 4-inch corolla purple-brown, without markings, but slightly rugose, covered with soft purple hairs on the disk, the lobes glabrous but fringed with stiffer purplish or white hairs. It differs from *Stapelia grandiflora* in the much smaller flowers and in the corona structure, especially in the finely toothed wing of the inner corona-lobes. It is probably no longer in cultivation.

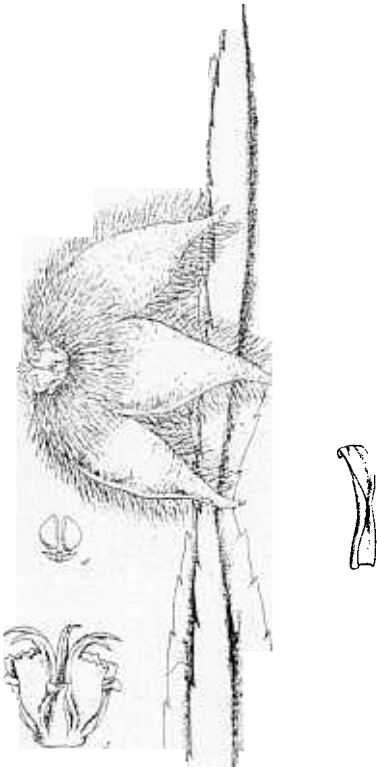


FIG. 545.

Stapelia fuscopurpurea N. E. Brown x 0.75
From Hooker's Icones Plantarum, 1890.

63. *Stapelia marlothii* N. E. Brown, Kew Bull., 436. 1908.

(Description by Dr. Brown, l.c., translated from the Latin) :

Stems: erect, decumbent at the base, 10 to 15 cm. high, 1.3 to 2.5 cm. thick, pubescent, with the angles compressed;

Flowers: solitary (*Marloth*) near the base of the stems;

*Pedice*l: 2 cm. (or more?) long, velvety;

Sepals: 1 cm. long, lanceolate, acute, velvety;

Corolla: 10 cm. in diameter, outside velvety-puberulous, inside slightly rugose, covered with long simple hairs to the apex of the lobes; *tube* very short, 1.5 cm. broad, pentagonal, grooved at the angles; *lobes* 4.5 cm. long, 1.3 cm. broad at the base, long attenuate-lanceolate, very acute;

Outer corona: lobes erect, 2.5 mm. long, oblong, acute, concave;

Inner corona: lobes with the inner horn spreading from the base, 5 mm. long, compressed on the back, linear-attenuate, acute or toothed at the apex, and the dorsal wing 3 mm. long, 2 to 2.5 mm. broad, broadly oblong, very obtuse or subtruncate at the apex, obscurely toothed.

Type locality: Southern Rhodesia: Matopo Hills.

Distribution: Not further known.

Stapelia marlothii is another close relative of *S. asterias*, although its habitat is far from the Karroo. It is a tropical species, named for Dr. Marloth, who discovered it about 1907 in the Matopo Hills of Southern Rhodesia, the rough sea of mountain ranges ("a region," one traveler has called it, "frozen in the convulsions of creation") which lies to the south of Bulawayo and includes the granite summit where Cecil Rhodes is buried among gigantic boulders, whence is seen the great panorama known

as the "World's View."

The description of *S. marlothii* does not mention the color of the flowers, which is presumably about the same as in *S. asterias*. The 4-inch flowers are shaggy to the tips of the corolla-lobes with long simple hairs. The outer corona-lobes are very short, 1/10 of an inch, as compared with 1/5 of an inch in *S. asterias*; and the lobes of the inner corona have a slender horn spreading from the base, with a wing broadly oblong and minutely toothed.

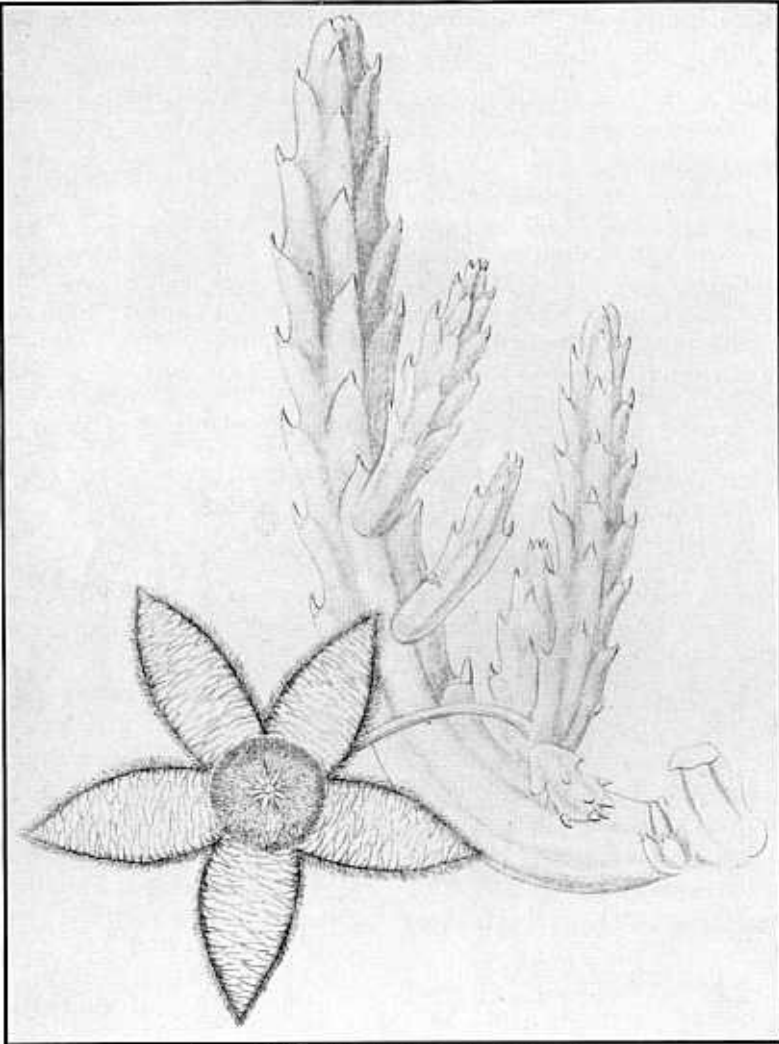


FIG. 546

Stapelia sororia Masson

Stapeliae No

***Stapelia sororia* Mas** ; Stap. Nov .796.

Stapelia sororia var. *alia* Jacquin, Stap., t. 58. 1806-19.

Stapelia uncinata Jacquin fil., Synop. Stap., 1816.

Stapelia lunata Sweet, Hort. Brit., 2 Ed., 357. 1830.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 944) :

Stems: with a rather lax habit of growth, with *stems* 6 to 12 in. high, 6 to 10 lin. square, erect from a decumbent base, with compressed angles and erect rudimentary leaves 1 to 1½ in. long at the teeth, probably velvety-puberulous;

Leaves: 1 to 3 together near the base of the young stems;

Flowers: 1½ to 2½ in. long, pubescent;

Petals: lanceolate, acute, pubescent;

Corolla: about $4\frac{1}{2}$ in. in diameter with the recurved lobes extended, transversely rugose on the inner surface, purple-brown, marked from near the base to the tips of the lobes with transverse yellow lines, with soft purple hairs on the disk and base of the lobes and the remaining part of the inner surface glabrous, but ciliate to the tips of the lobes with long purplish simple hairs, half of them directed inwards; *lobes* $1\frac{3}{4}$ to nearly 2 in. long, about 1 in. broad, lanceolate, acute, much recurved, flattish, but slightly contracted and apparently with recurved margins at the base;

Outer corona: lobes ascending-spreading, with recurved tips, linear, acute or obtuse, concave down the face, dark purple-brown;

Inner corona: lobes with the dorsal wing shortly adnate at its base to the inner horn, the free part oblong or deltoid-oblong, toothed at the apex, erectly spreading, dark purple-brown; inner horn connivent-erect with recurved-hooked tips, triquetrous-subulate, longer than the dorsal wing, yellowish, dotted with purple-brown.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

Stapelia sororia is one of Masson's lost plants, of which little is known except that it flowered in his garden at the Cape in 1792 and at Kew in 1797. Jacquin devoted three plates to it (1806-19), of which two, however, are only related forms of *S. hirsuta*, while the third more nearly approaches the true *S. sororia*. Willdenow of Berlin appears to have known the plant, about 1809. It is not mentioned in the Index Kewensis of 1810. But if it disappeared from cultivation by that date, or soon thereafter, its name has persisted and to this day is frequently found on the labels of various

hybrid forms of *S. hirsuta*. Perhaps Masson chose the name, the "sister *Stapelia*," because of its resemblance to that hardier species. He was very careful to point out the differences between the two, emphasizing the lax habit of *S. sororia*, its stoutish stems with compressed angles, the nodding character of the flowers and the uniform combination of color in the corolla, purple with transverse yellow bands continued to the tips of the lobes. Collectors must remain on their guard whenever they meet the name.

65. *Stapelia hirsuta* Linnaeus, Sp. Pl., 1 Ed., 217. 1753.*Apocynum cauliculis* &c., Plukenet, Almages Bot., 37. 1696.*Asclepias aizoides* &c., Morison, Hist. Pl., iii. 611. 1699.*Asclepias africana* &c., Tournefort, Inst. Rei Herb., i. 94. 1703.*Crassa minor* Ruppius, Flora Ien., 27. 1718.*Stapelia denticulis* &c., Linnaeus, Hort. Cliff., 77. 1737.*Stapelia tuberculis* &c., Burman, Rar. Afr. Pl., 29. 1738.*Stapelia pulvinata* J. Donn, Hort. Cantab., 4 Ed., 53. 1807. *Nec* Masson, 1796.*Stapelia sororia* Loddiges, Bot. Cab., t. 94. 1817. *Nec* Masson, 1796.*Stapelia lanifera* Haworth, Suppl. Pl. Succ., 8. 1819.*Stapelia hirsuta* var. *atra* Lindley, Bot. Reg., t. 756. 1823.*Stapelia lanigera* Loudon, Hort. Brit., 96. 1830.*Stapelia villosa* N. E. Brown, Icon. Pl., t. 1911. 1890.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 936):

Stems: erect, 4-angled, 5 to 8 or occasionally up to 12 in. high, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, with compressed angles and erect rudimentary leaves $\frac{1}{2}$ to 1 lin. long at the teeth, softly puberulous, green;*Flowers*: 1 to 3 together near the base of the young stems, successively developed;*Pedicel*: $1\frac{1}{2}$ to 4 in. long, 2 to $2\frac{1}{2}$ lin. thick, velvety-puberulous;*Sepals*: 4 to 6 lin. long, lanceolate or linear-lanceolate, acute, velvety-puberulous;*Corolla*: 4 to 5 in. in diameter with the lobes extended, rather minutely puberulous on the back, transversely rugose on the inner surface, with the flat disk and basal fourth part of the lobes densely covered with soft purple hairs 2 to 3 lin. long, somewhat intermingled or matted (woolly-looking in dried flowers), the remaining part of the lobes glabrous, but ciliate to their tips with rather coarser long simple pale purple or whitish hairs, half of them directed inwards, very dark purple-brown at the apical half and marked with transverse cream-colored or yellowish and purple-brown lines on the basal half of the lobes, passing into cream-color more or less tinted with purplish on the disk; *lobes* $1\frac{3}{4}$ to $2\frac{1}{4}$ in. long, about 1 in. broad, lanceolate, acute, flat, recurved;

FIG. 547

Stapelia hirsuta Linnaeus variety x 0.35

Photo by S. Tapscott.

Outer corona: lobes ascending-spreading with recurved tips, about 3 lin. long, linear or narrowly oblong-linear, tapering or rounded at the apex into a subulate point, which sometimes has a minute tooth on each side at its base, channeled down the face, dark purple-brown, ochreous-tinted at the base;

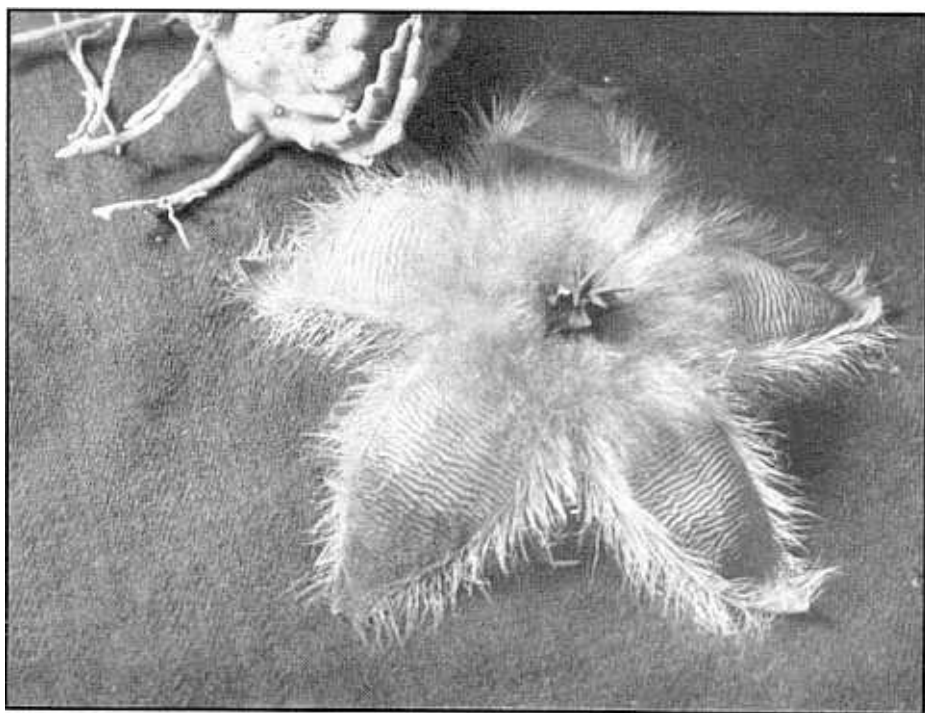


FIG. 548

Stapelia hirsuta Linnaeus x 1

This and the following three photographs are of flowers from plants growing together on a hill a few miles north of Ceres. They represent only a few of dozens of minor variations in the markings, density of the hair-cushion and other details. Photo by Carl Luckhoff.

Inner corona: lobes ascending, 4 to 4½ lin. long, blackish, with the dorsal wing adnate for the whole of its length to the inner horn and truncate and toothed at the top or adnate for ½ to ⅔ of its length and produced beyond into a deltoid obtuse or acute point shorter than or equaling the inner horn and more or less toothed on the inner margin; inner horn with the free part triquetrous-subulate, acute, slightly curved, not hooked at the apex.

Type locality: South Africa: without precise locality.

Distribution: These records probably include varietal forms: Cape Prov.: Wellington Distr.: near Wellington; Caledon Distr.: near Genadendal; Robertson Distr.: western aspect of Kogmans Kloof; Prince Albert Distr.; Ceres Distr.: Driefontein; Dwykakop; Little Namaqualand: near Port Nolloth; Richtersveld.

Stapelia hirsuta was the second of the *Stapelias* discovered, near the close of the 17th century (see Appendix B). Thunberg stated that it grew "on mountains near Capetown, near Paarl and elsewhere." It is no longer found near Capetown, but is

FIG. 549

Stapelia hirsuta Linnaeus x 0.75

Photo by Carl Luckhoff. See note to Fig. 548. The density of the central hair cushion approaches that of *S. pulvinata*, from which this form can hardly be distinguished.

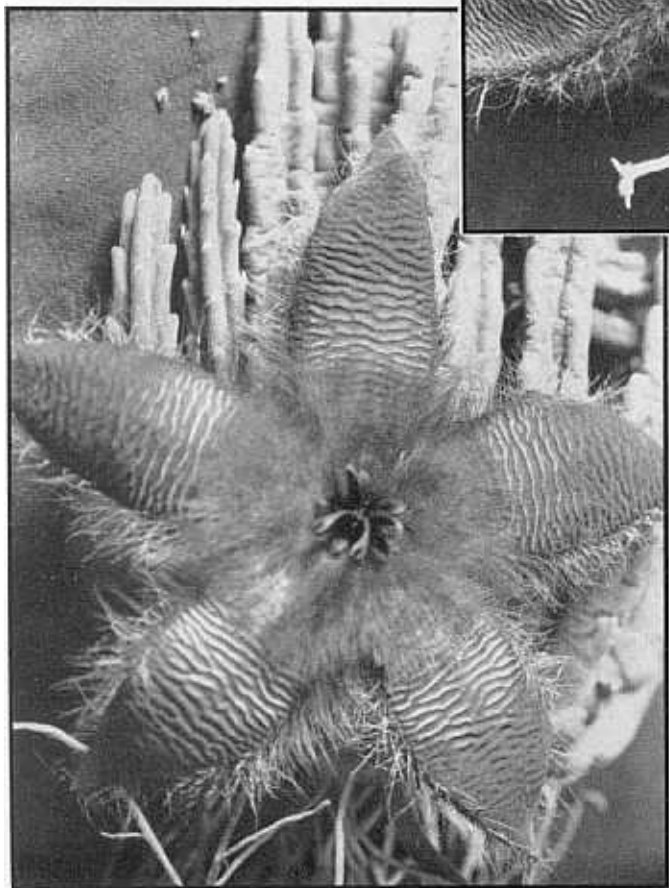
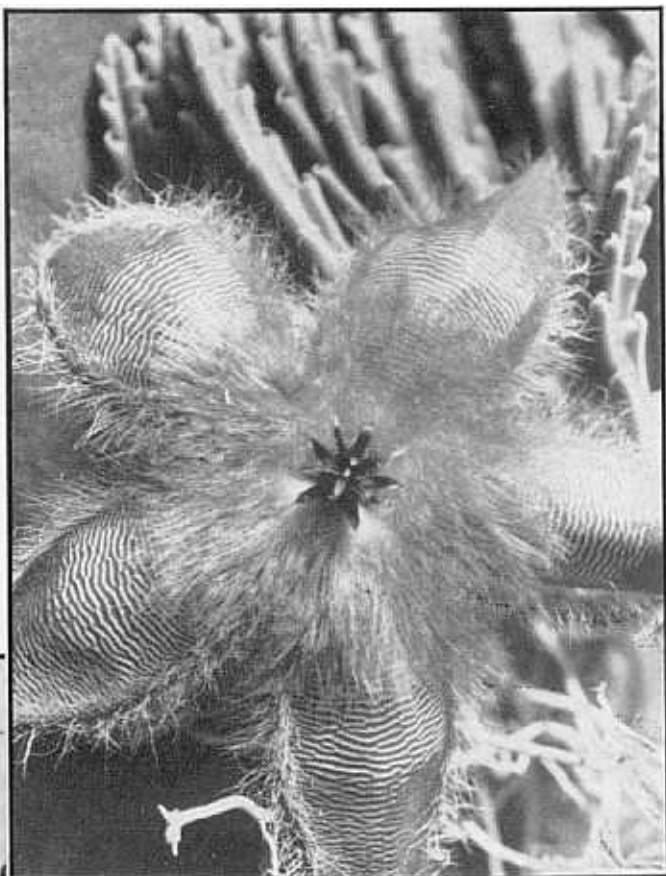


FIG. 550

Stapelia hirsuta Linnaeus x 0.6

Photo by Carl Luckhoff.

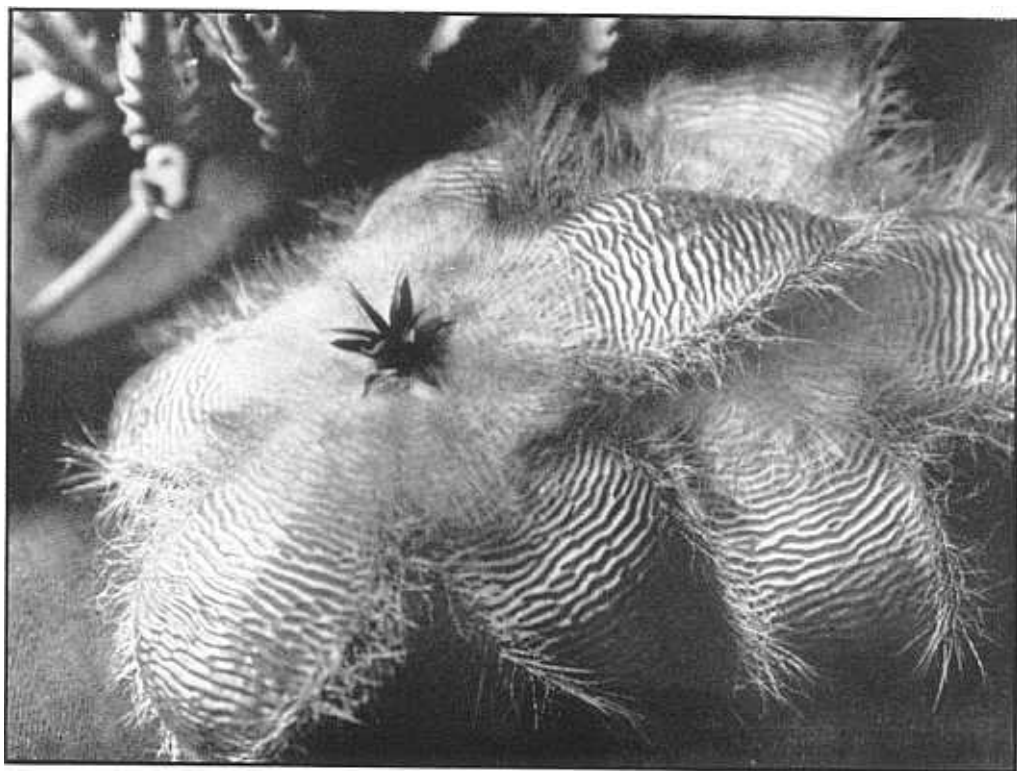


FIG. 551

Stapelia hirsuta Linnaeus x 0.75

Photo by Carl Luckhoff.

widely distributed through the west coast regions, in the Karroo and to the Richtersveld in Little Namaqualand. It assumes so many varietal and hybrid forms that it fully baffles systematic analysis. Compare for instance the details of the four flowers shown in Figs. 548 to 551, all collected on a hill near Ceres. As a group, *Hirsutas* are characterized by cream-colored flowers, $2\frac{1}{2}$ to 5 inches in diameter, tinged purple at the centre, developing into purple-brown transverse lines on the corolla-lobes, with the tips of the lobes wholly dark purple-brown. The lobes are fringed with long simple hairs, purple or white, and their basal quarter and the flat central disk are shaggy with dense soft purple hairs, so

that the name, "Shaggy Stapelia," is an appropriate one. The type was described by Linnaeus in his *Hortus Cliffortianus*, 1737. Its very hairy flowers had the erect inner corona-horns adnate for more than half their length to a toothed dorsal wing. According to Dr. N. E. Brown, all specimens in herbariums dating between 1727 and 1800 belong to this type, but during the 19th century it vanished from cultivation, to be replaced by the innumerable varieties and hybrids. In the *Flora Capensis* seven varieties and one hybrid are described, and all of these have been in cultivation at one time or another. The var. *patula* is found in the herbarium of Linnaeus himself.

Var. a. *Stapelia hirsuta* var. *affinis* (N. E. Brown) N. E. Brown, *Flora Cap.*, iv. i. 937. 1909.

Stapelia stellaris Loddiges, *Bot. Cab.*, t. 1312. 1828. *Nec* Haworth, 1812.

Stapelia affinis N. E. Brown, *Icon. Pl.*, t. 1912. 1890.

(Description by Dr. Brown, l.c.):

Corolla: usually 4 to $4\frac{1}{2}$ (rarely 3 to $3\frac{1}{2}$) in. in diameter;

Inner corona: lobes with the dorsal wing free nearly or quite to the base, ascending-spreading, 3 to 4 lin. long, $\frac{3}{4}$ to 1 lin. broad at the base, linear-oblong or gradually tapering from the base to an acute or obtuse point, entire; inner horn 4 to 5 lin. long, triquetrous-subulate, acute, recurved-ascending;

Type locality: Cape Prov.: without precise locality.

Distribution: Worcester Distr.: southern slopes of Hex River Mountains; Robertson Distr.: western aspect of Kogmans Kloof.

The "kindred variety" is nearest of all to the type, with the dorsal wings of the inner corona-lobes free nearly or quite to their base. It appears to have been collected by Thunberg, about 1773, a specimen as well as one of the type being included in his herbarium sheets. The specimen recorded from Kogmans Kloof is a small-flowered form.

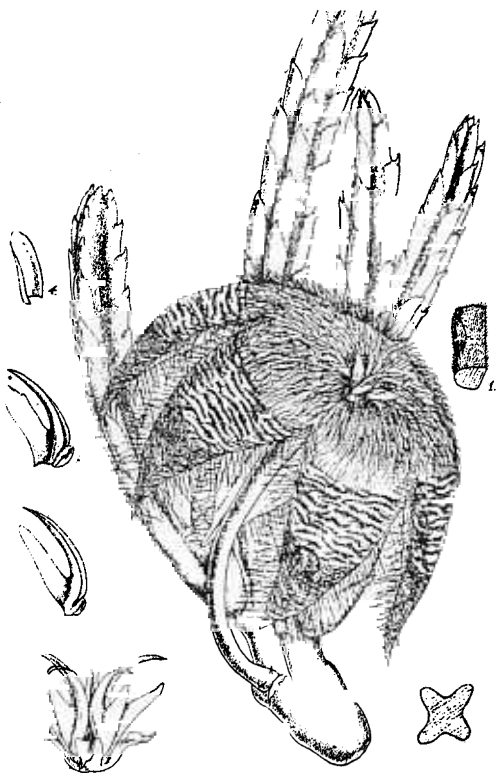


FIG. 552

Stapelia hirsuta var. *affinis* N. E. Brown x 0.75
From Hooker's *Icones Plantarum*, 1890.

Var. b. *Stapelia hirsuta* var. *lutea* N. E. Brown, *Flora Cap.*, iv. i. 937. 1909.

(Description by Dr. Brown, l.c.):

Stems: "rather pale green" (Pillans);

Pedicel and sepals: "greenish-primrose" (Pillans);

Corolla: about $3\frac{1}{2}$ in. in diameter with the $1\frac{1}{4}$ to $1\frac{1}{2}$ in.-long lobes extended, "greenish-primrose on the back, uniformly bright primrose-yellow on the inner surface, without markings, hairs also yellow, like raw silk, turning greyish" (Pillans);

Outer and inner corona: lobes as in var. *affinis*, but slightly smaller, "bright canary-yellow" (*Pil-lans*).

Type locality: Cape Prov.: Caledon Distr.: near the source of the Zonderend River.
Distribution: Not further known.

This "yellow variety," with the corolla uniformly bright primrose-yellow, without markings, would almost appear to be a distinct species. It was discovered by C. Piers in April, 1906, a little more than 50 miles east of Capetown. A single plant was growing among a colony of the var. *affinis*, of which it may have been a seedling form.

Var. c. *Stapelia hirsuta* var. *patula* (Willdenow) N. E. Brown, *Flora Cap.*, iv. i. 937. 1909.

Asclepias africana &c., Commelin, *Hort. Med. Amst. Pl. Rar.*, 19. 1715.

Stapelia sororia Jacquin, *Stap.*, t. 56. 1806-19. *Nec* Masson, 1796.

Stapelia patula Willdenow, *Enum. Pl. Hort. Berol.*, 281. 1809.

Stapelia elongata Sweet, *Hort. Brit.*, 2 Ed., 357. 1830.

Stapelia variegata Gouas, *Rev. Hort.*, 42. 1857. *Nec* Masson, 1796.

Stapelia rufescens Hort., *Rep. Miss. Bot. Gard*, 23. 1902. *Nec* Salm-Dyck, 1834.

(Description by Dr. Brown, l.c.):

Corolla: smaller than in the type, $2\frac{1}{2}$ to $3\frac{3}{4}$ (rarely 4) in. in diameter; hairs on the disk rather shorter and less dense than in the type, this is especially observable in dried specimens; *lobes* $1\frac{1}{4}$ to $1\frac{3}{4}$ in. long, usually lanceolate and nearly or quite twice as long as broad;

Inner corona: lobes variable, 3 to 4 lin. long, with the dorsal wing either adnate from $\frac{1}{3}$ to all of its length to the inner horn or free nearly or quite to the base, truncate and toothed at the top or deltoid, narrowly deltoid-lanceolate or oblong, entire or toothed;

Follicles: slightly diverging, about 5 in. long, 4 to 5 lin. thick, fusiform, shortly beaked, very minutely and rather thinly puberulous, marked with longitudinal purple-brown lines;

Otherwise as in the type.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Caledon Distr.: Vygeboom Farm; Robertson Distr.: Kar-roo, near Robertson; Ceres Distr.: Mitchells Pass, near Ceres.

The "outspreading *Hirsuta*" has flowers smaller than those of the type, with long corolla-lobes whose slenderness is accentuated by their recurved edges. Commelin's figure, 1715, (Fig. 38), represents a form in which the dorsal wing of the inner corona-lobes is entirely adnate to the inner horn, but this is an unstable character. This variety and the var. *affinis* are the ones most often found in collections.

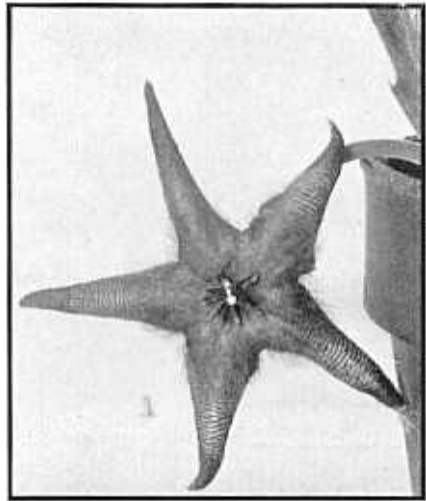


FIG. 553

Stapelia hirsuta var. *patula* N. E. Brown x 0.75

Var. d. *Stapelia hirsuta* var. *comata* (Jacquin) N. E. Brown, *Flora Cap.*, iv. i. 938. 1909.

Stapelia comata Jacquin, *Stap.*, t. 49. 1806-19.

(Description by Dr. Brown, l.c.):

Corolla: as in var. *patula*, but with the hairs on the disk denser, more woolly and of a darker purple

Corona: as in var. *patula*.

Type locality: Cape Prov.: Malmesbury Distr.: Paarde Berg.

Distribution: Also from Robertson Distr.: western aspect of Kogmans Kloof.

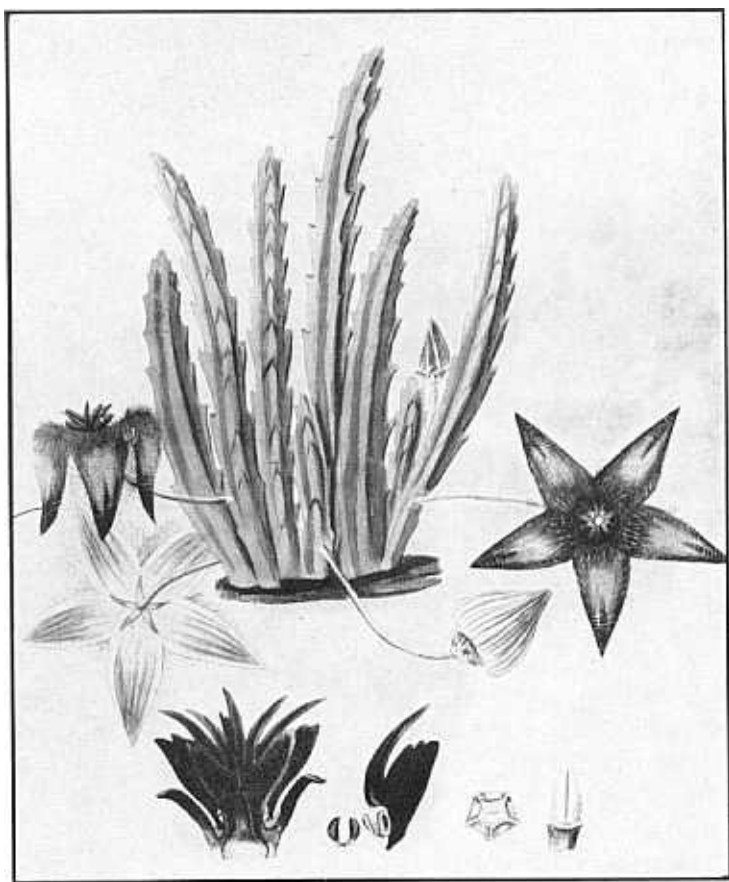


FIG. 554

Stapelia hirsuta var. *comata* N. E. Brown x 0.4
From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

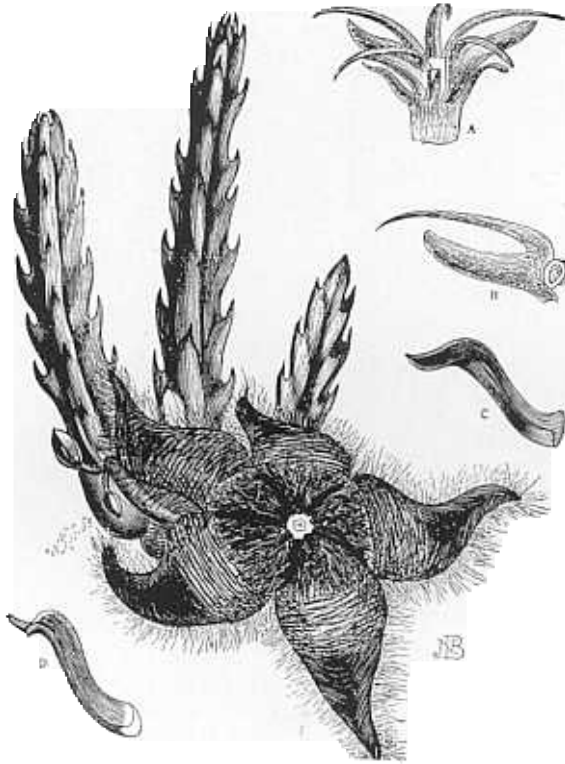


FIG. 555

Stapelia hirsuta var. *depressa* N. E. Brown x 0.4

From drawing by N. E. Brown in the Gardeners' Chronicle, 1908.

Var. e. *Stapelia hirsuta* var. *grata* N. E. Brown, Flora Cap., iv. i. 938. 1909.

(Description by Dr. Brown, l.c.):

Stems: up to 1 ft. high, "rather more robust and squarer than in the vars. *affinis* and *patula*" (Pillans);

Corolla: $3\frac{3}{4}$ to $4\frac{1}{2}$ in. in diameter, with lobes $1\frac{1}{6}$ to $1\frac{1}{4}$ in. long, 1 to $1\frac{1}{4}$ in. broad, ovate, acute, dark purple-brown at the apex, lighter with creamy-yellow transverse lines on the lower $\frac{2}{3}$ of the lobes; disk creamy with the hairs bright purple and rather longer and more dense than in the var. *patula*;

Corona: as in var. *patula*.

Type locality: Cape Prov.: Robertson Distr.: near Robertson.

Distribution: Also from Kruispad, in same district.

The "pleasant Hirsuta" is closely akin to the var. *patula*, from which it differs mainly in the larger stems and flowers, and in having the hairs on the corolla-disk more dense and of a brighter purple color.

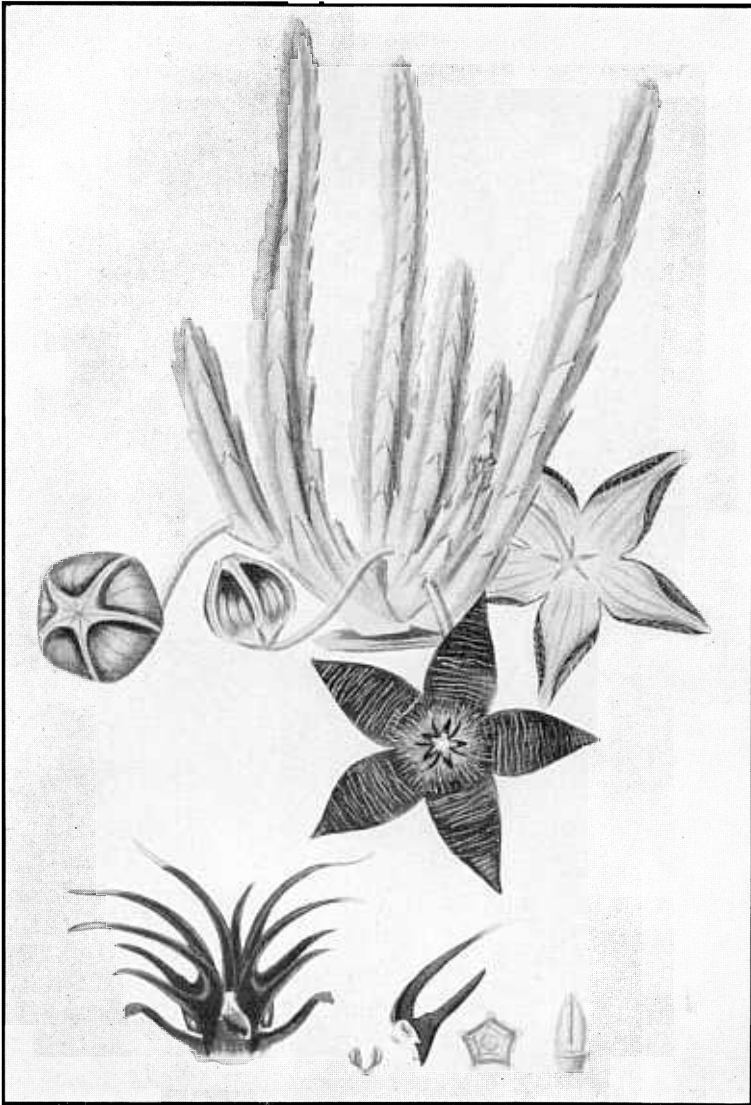


FIG. 556

Stapelia hirsuta var. *depressa* N. E. Brown x 0.

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

Var. f. *Stapelia hirsuta* var. *depressa* (Jacquin) N. E. Brown, *Gard. Chron.*, xlv. 169 1908.

Stapelia depressa Jacquin, *Stap.*, t. 55. 1806-19.

Tridentea depressa Schultes, *Syst. Veg.*, vi. 850. 1820.

Stapelia sororia Hooker fil., *Bot. Mag.*, t. 5963. 1872. ex Masson.

Stapelia patentirostris N. E. Brown, *Gard. Chron.*, vii. 1

Stapelia courcelli Hort., *Gard. Chron.*, vii. 140. 1877.

Stapelia patula var. *depressa* N. E. Brown, *Icon. Pl.*, sub t. 1914. 1890.

(Description by Dr. Brown, *Flora Cap.*, iv. i. 938)

Corolla: in bud subglobose, with 5 apical depressions;

Inner corona: lobes widely spreading, with the inner horn suddenly recurved near its base and horizontally spreading almost to the sinuses of the corolla, recurved at the tip and about $\frac{1}{3}$ longer than the narrowly attenuate spreading wing-like outer horn, which is free to the very base;

Otherwise as in var. *patula*.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Worcester Distr.: near Worcester; Ceres Distr.: Mitchells Pass, near Ceres.

The "depressed Hirsuta" is a variety first cultivated in the days of Baron de Jacquin. It derives its name from the apical depressions of the buds. It is closely allied to the

var. *patula*, differing in the inner horns of the inner corona-lobes being horizontally spreading.

Var. g. *Stapelia hirsuta* var. *longirostris* (N. E. Brown) N. E. Brown, Flora Cap., iv. i. 938. 1909.

Stapelia patula var. *longirostris* N. E. Brown, Icon. Pl., t. 1914. 1890.

(Description by Dr. Brown, Flora Cap., l.c.):

Inner corona: inner horn of the lobes about twice as long as the outer horn and arching over and much beyond it or curved nearly in a semicircle so that its tip is placed close to the tip of the outer horn or curves under it;

Otherwise as in var. *depressa*.

Type locality: Cape Prov.: Ceres Distr.: Mitchells Pass, near Ceres.

Distribution: Not further known.

The "long-beaked Hirsuta" is little more than a form of the var. *depressa*, with the inner horn of the inner corona arching over the dorsal wing, instead of being horizontally spreading.

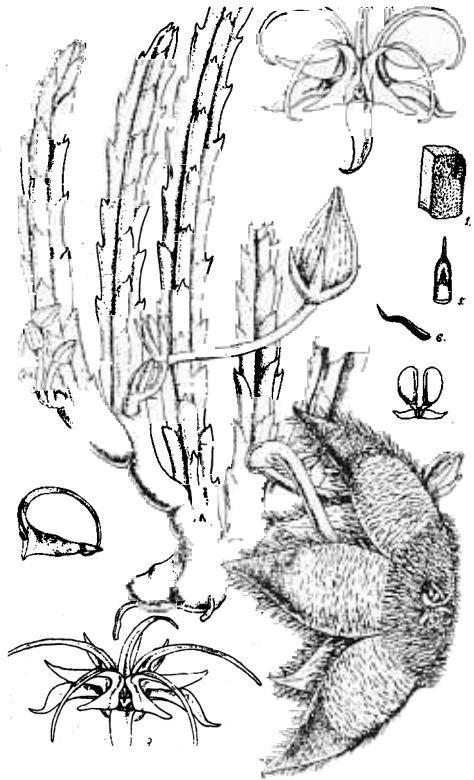


FIG. 557
Stapelia hirsuta var. *longirostris*
 N. E. Brown x 0.75
 From Hooker's Icones Plantarum, 1890.

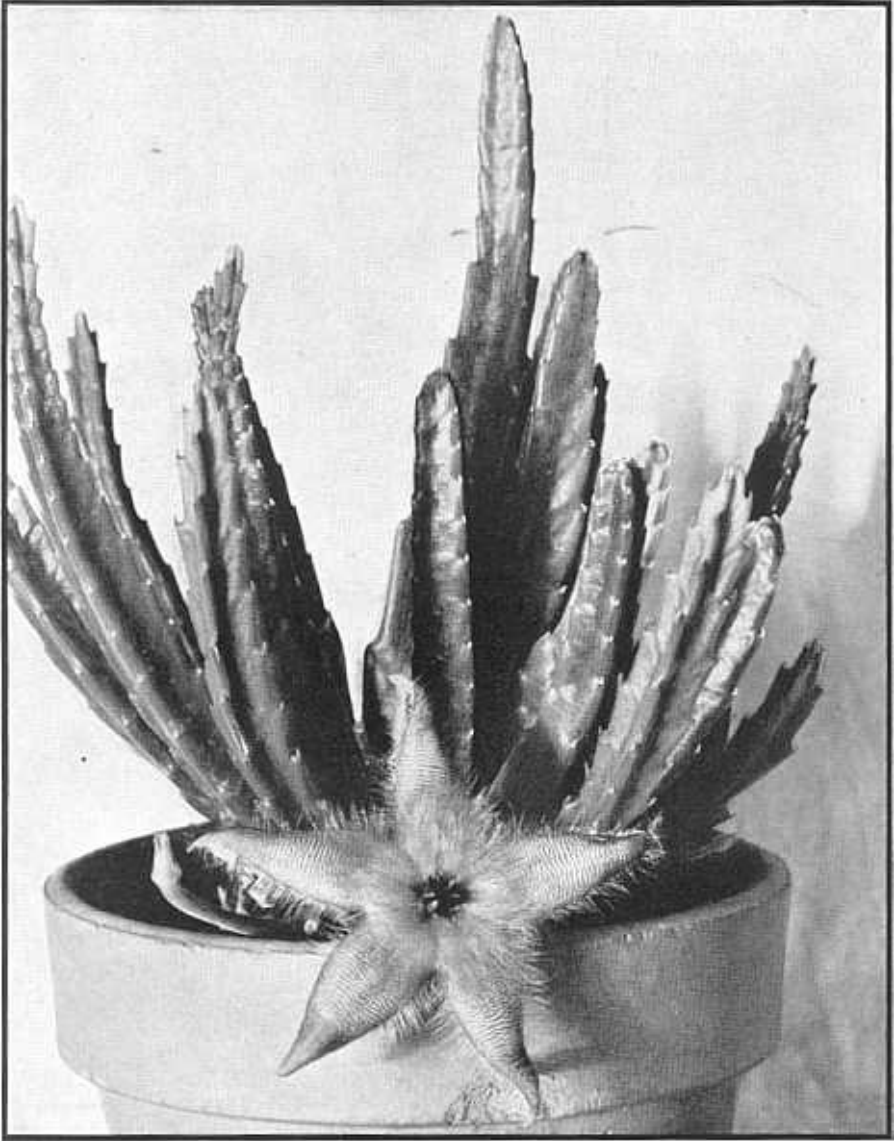


FIG. 558

Stapelia hirsuta Linnaeus variety x 0.5

Photo by Dickson and Thurber.

Var. h. *Stapelia hirsuta* var. *unguipetala* (N. E. Brown) N. E. Brown, *Flora Cap.*, iv. i. 938. 1909.

Stapelia unguipetala N. E. Brown, *Gard. Chron.*, vii. 334. 1877.

(Description by Dr. Brown, *Flora Cap.*, l.c.):

Corolla: $3\frac{1}{2}$ to $4\frac{1}{2}$ in. in diameter; *disk* with the centre and 5 bands radiating to the sinuses pale greenish-ochre; *lobes* with the margins of the apical half much revolute and the tips upcurved; Otherwise as in the var. *patula*.

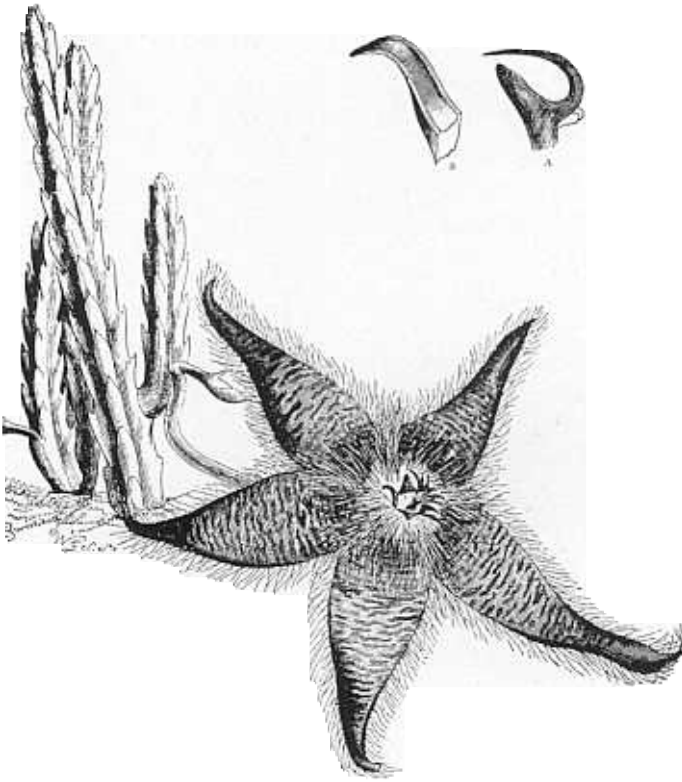


FIG. 559

Stapelia hirsuta var. *unguipetala* N. E. Brown x 1.

From drawing by N. E. Brown in the *Gardeners' Chronicle*, 1908.

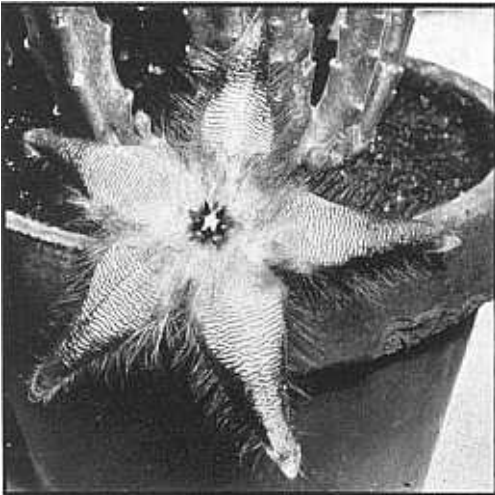


FIG. 560

Stapelia hirsuta var. *unguipetala* N. E. Brown
x 0.75

The "Hirsuta with fingernail petals" is the best known of the Hirsuta hybrids. The corolla-lobes are recurved with the tips slightly upturned, like My Lady's modish fingernail; and there are five bands of greenish-ochre radiating from the centre of the disk to the sinuses between the lobes, a feature which may point to an *Asterias* relationship. Another hint of the same lineage occurs in some Hirsuta hybrids which have the inner face of the corolla shiny, a character absent from the true varieties. Still other forms are found with the corolla more purplish throughout, sometimes with an edging of purple around the lobes, which may bespeak some influence from *S. deflexa* or possibly from *S. plantii*. In general it is a moderately safe wager

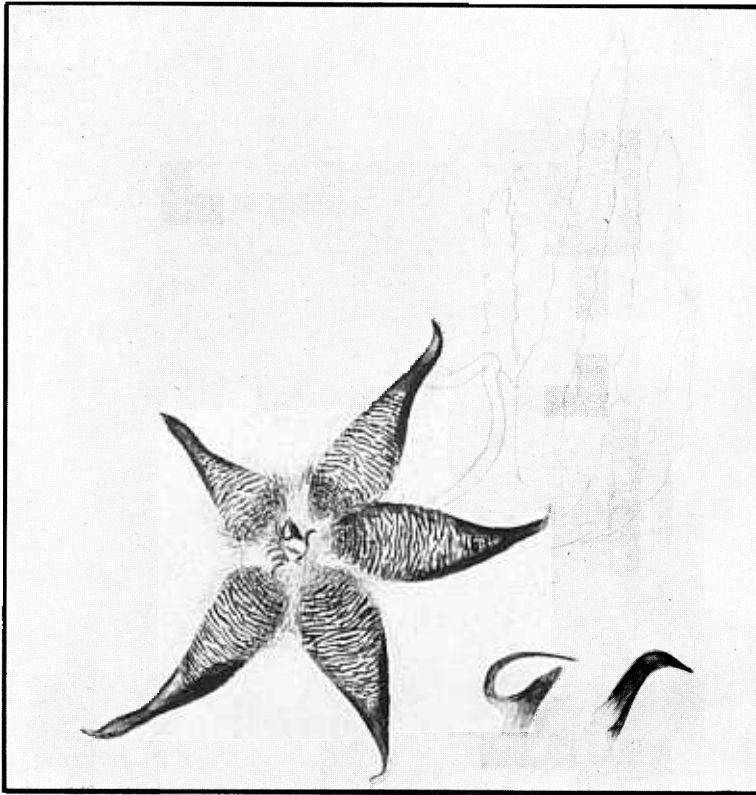


FIG. 561

Stapelia hirsuta var. *unguipetala* N. E. Brown x 0.75

Drawing by N. E. Brown, 1875. Reproduced by permission of the Bentham Trustee:

that any *Stapeltonia* which cannot be otherwise identified is a cousin, however remote, of *S. hirsuta*; but such hybrids are so inconstant that any attempt to endow them with the dignity of Latin names is simply to labor for the wind.

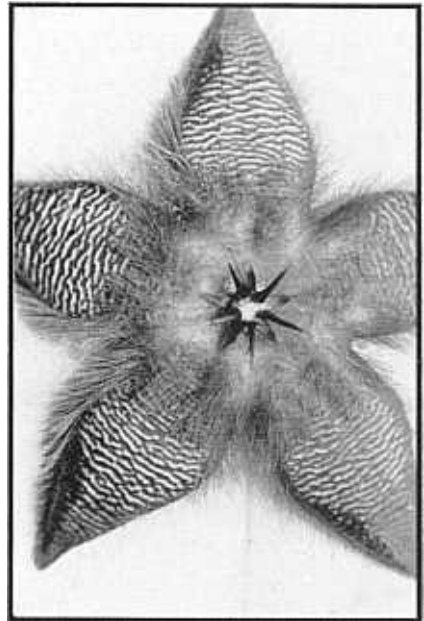


FIG. 562

Stapelia hirsuta hybrid, related to var. *unguipetala* x 0.75

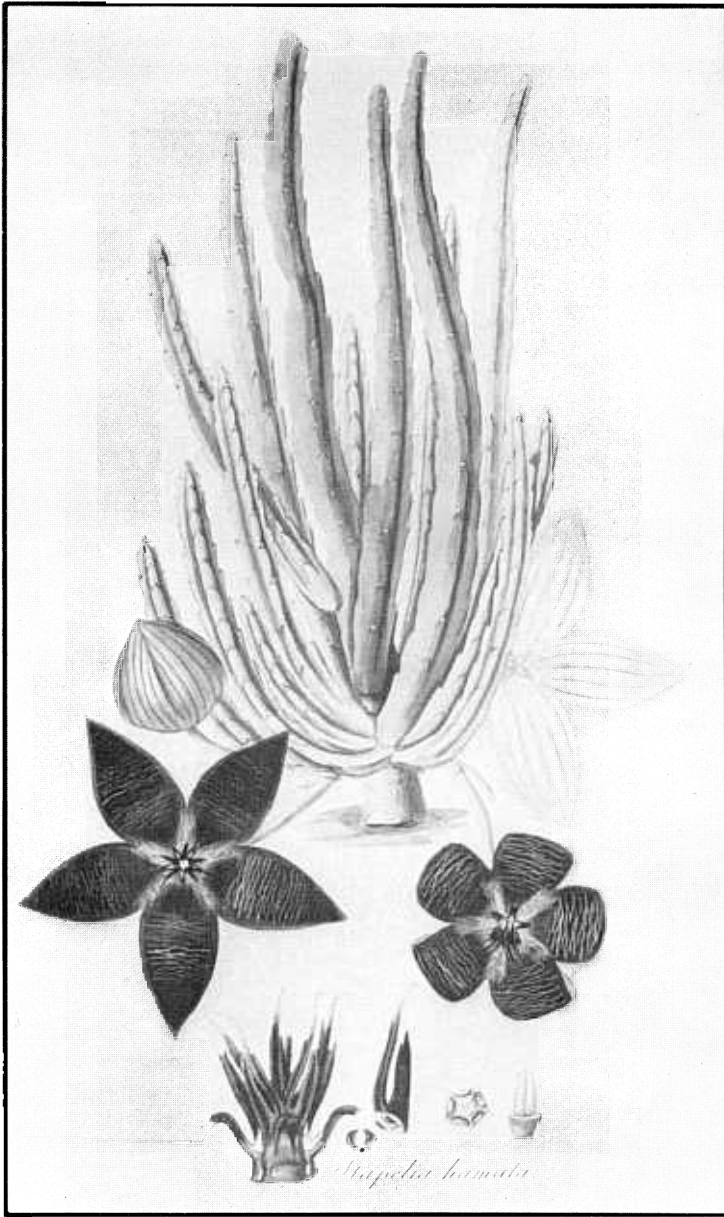


FIG. 563

Stapelia hamata Jacquin

From Jacquin: *Stapeliarum De*

Species or hybrids related to *S. HIRSUTA* or *S. ASTERIAS*.

The following are names of unimportant plants, none of which so far as we know are in cultivation to-day, although some of their names persist. *S. dejecta* is stated to have been grown (by Prince Salm-Dyck) from South African seed; the remainder are almost certainly hybrids. Their exact status is immaterial.

Stapelia dejecta Salm-Dyck, Hort. Dyck., 372. 1834.

Stapelia glabriflora N. E. Brown, Gard. Chron., vi. 809. 1876.

Stapelia hamata Jacquin, Stap., t. 50. 1806-19.

Stapelia massoni Haworth, Syn. Pl. Succ., 18. 1812.

Stapelia massoni var. *livida* N. E. Brown, Flora Cap., iv. i. 950. 1909.

Stapelia multiflora de Candolle, Cat. Hort. Monsp., 149. 1813.



FIG. 564

Stapelia glabriflora N. E. Brown

From Gardeners' Chronicle, 1908.

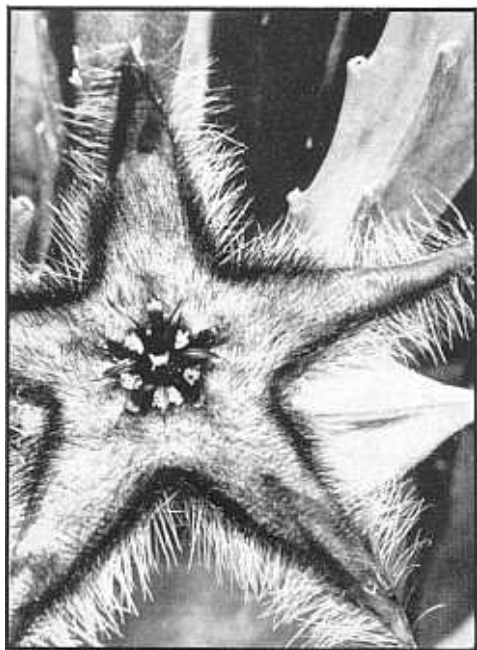


FIG. 565

In this *Stapeltonia* hybrid the ground color of the entire corolla surface is a distinct shade of brownish-green. The cushion of soft hairs extends a third of the way up the lobes.

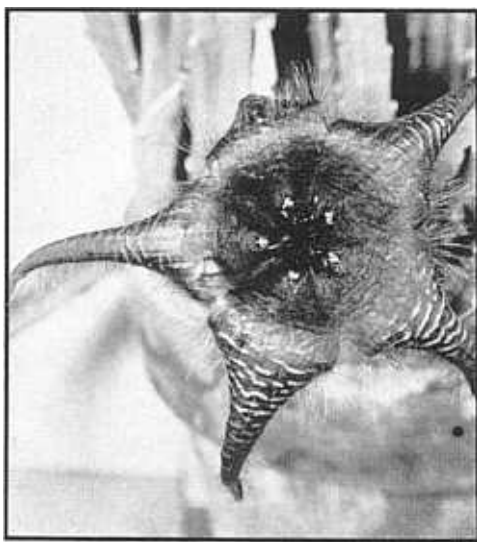


FIG. 566

A curious hybrid, probably related to *S. hirsuta*, but with the corolla very dark blackish-purple save for a few lighter markings on the transverse rugosities. The corolla-disk forms a broad and shallow depression.

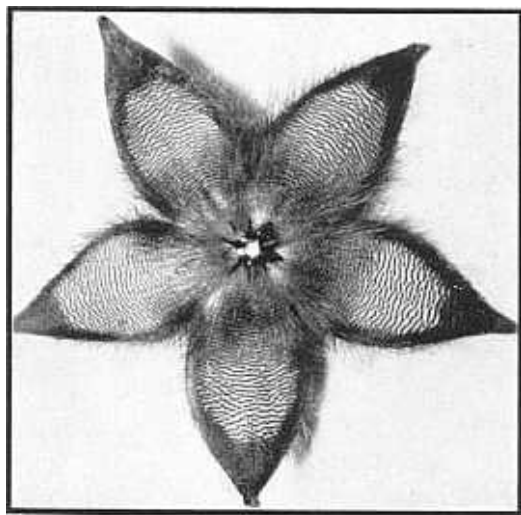


FIG. 567

A handsome hybrid of *S. asterias*

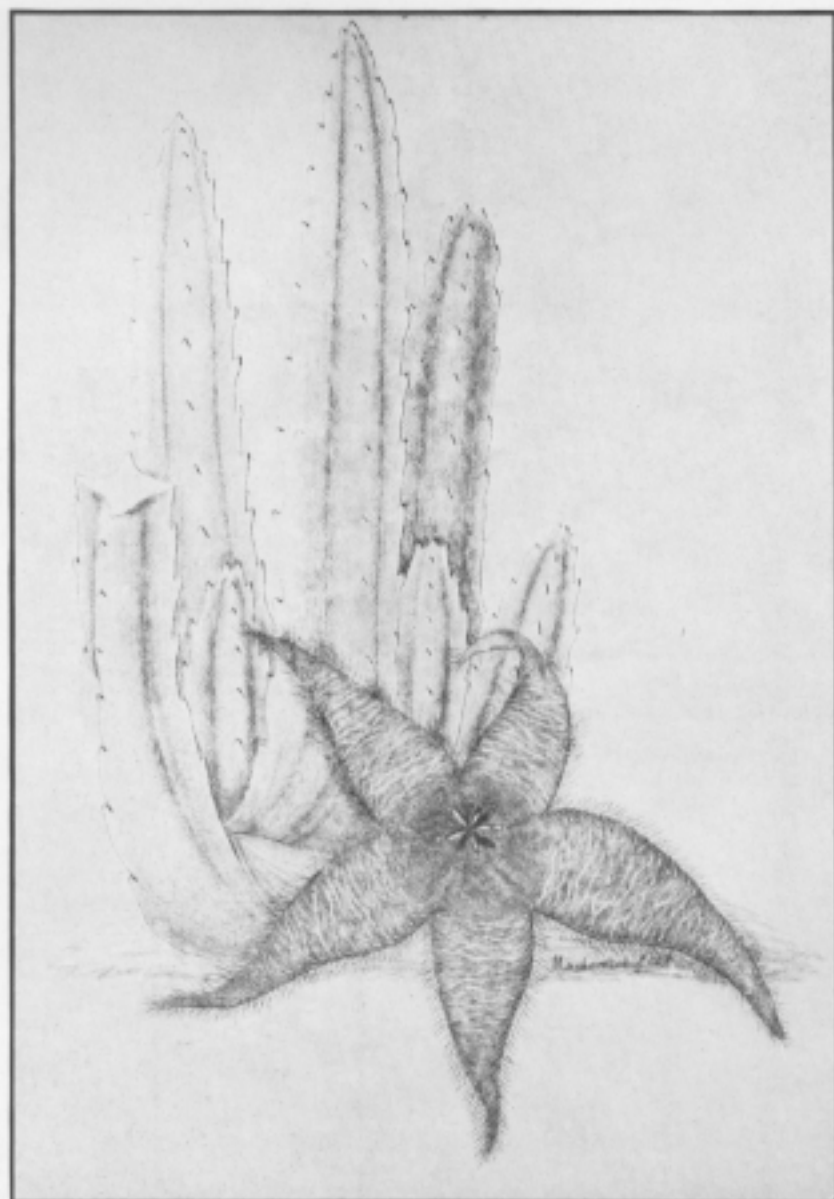


FIG. 568

Stapelia asterias Masson x 1.From Masson: *Stapeliae Novae*, 1796.66. *Stapelia asterias* Masson, *Stap. Nov.*, 14. 1796.*Stapelia stellaris* Haworth, *Syn. Pl. Succ.*, 19. 1812.*Stapelia stellata* St. Lager, *Ann. Soc. Bot. Lyon*, vii. 135. 1880.(Description by Dr. N. E. Brown, *Flora Cap.*, iv. i. 951):

Stems: 4 to 10 in. high, 7 to 10 lin. square, with compressed angles, nearly flat-sided with age, not very prominently toothed, with erect rudimentary leaves 1 to 1½ lin. long, velvety-puberulous, green;

Flowers: 1 to 5 together near the base of the stems, developing successively;

Pédicel: $\frac{2}{3}$ to $1\frac{1}{4}$ in. long, velvety;

Sepals: $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. long, lanceolate, acuminate, velvety;

Corolla: in bud ovate, acuminate; when expanded 3 to 4 in. in diameter, star-like with very spreading (or reflexed or somewhat contorted) lobes, $1\frac{1}{4}$ to $1\frac{3}{4}$ in. long, 7 to 9 lin. broad, back velvety-puberulous, inner surface transversely rugulose on the lobes, dark purple-brown, with narrow transverse yellow or whitish-yellow lines on the lobes, not reaching the margins, very shining, rather thinly covered with short erect purple hairs $\frac{1}{4}$ to $1\frac{1}{2}$ lin. long on the disk, often more densely and with rather longer hairs along 5 lines radiating to the sinuses; lobes more sparsely hairy to quite glabrous, lanceolate, acuminate, convex from the revolute margins, or flattish at the basal part, thickly ciliate to their tips with long simple pale purple hairs, half of them directed inwards;

Outer corona: lobes ascending-spreading with recurved tips, 2 to $2\frac{1}{2}$ lin. long, linear, slightly concave down the face, very shortly 3-toothed or very obtuse and apiculate at the apex, blackish or blackish-purple;

Inner corona: lobes ascending-spreading, $2\frac{1}{2}$ to 3 lin. long, dull dark purple-brown, paler towards the tips with minute dotting on a lighter ground, dorsal wing free or half adnate to the inner horn, subparallel with and nearly or quite as long, $\frac{2}{3}$ to 1 lin. broad, oblong or lanceolate-oblong, obtuse, entire or occasionally toothed at the apex; inner horn slightly recurved-erect, triquetrous-subulate, very obtuse viewed sideways.

Type locality: South Africa: Karroo.

Distribution: Not further known.

Discovered by Francis Masson about 1792, "in the Karroo." The name, the "Star-fish," (*Asterias* is a genus of *Echinodermata*), is appropriate to many species of *Stapelia*, and in consequence is found applied to all sorts of plants with little regard to accuracy. There is no authoritative record that the type has been found since Masson's day, though unconfirmed reports of its collection are not infrequent. These no doubt usually refer to the var. *lucida*. Some specimens in collections, at least among those cultivated in England and on the Continent, may have come down from Masson's plants through 140 years in gardens, none it would appear without some hybridizing effect from plants of other species. At all events the so-called *Asterias* in cultivation are very variable in their coronas and in the degree of hairiness of the corolla surface. For safer clues: First, the inner corolla surface is always very shiny; second, the frequent *Stapeltonia* color-blend, purple-brown with transverse yellowish lines, is modified in that the transverse lines do not extend to the edge

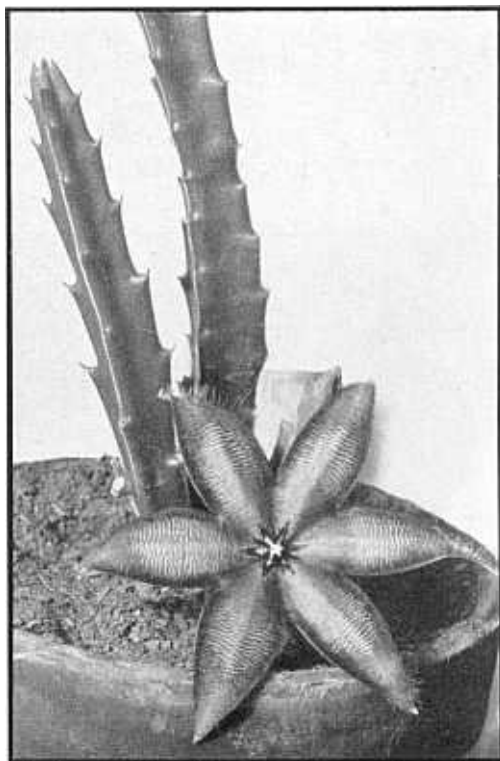


FIG. 569

Stapelia asterias Masson hybrid x 0.75

Showing how the outline of the corolla-lobes is continued to the centre of the disk.

A six-lobed flower.

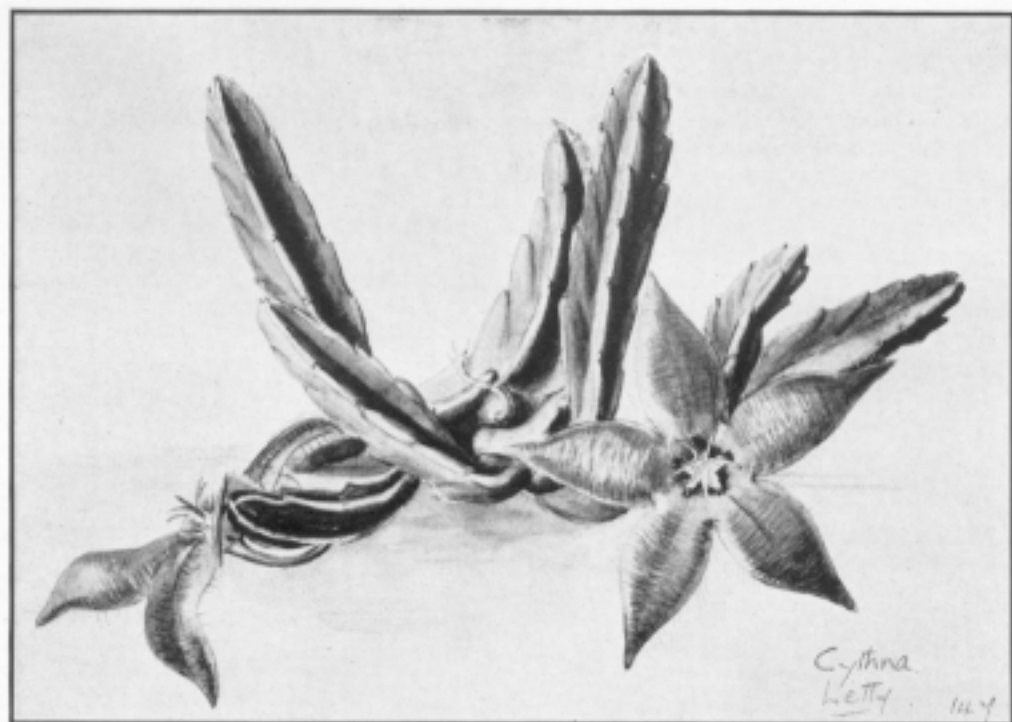


FIG. 570

Stapelia asterias var. *lucida* N. E. Brown x 0.7

From the original water color drawing by Miss Cythna Letty for the
Flowering Plants of South Africa, 1930.



FIG. 571

Stapelia asterias var. *lucida*
N. E. Brown x 0.9

Photo by S. Tapscott.

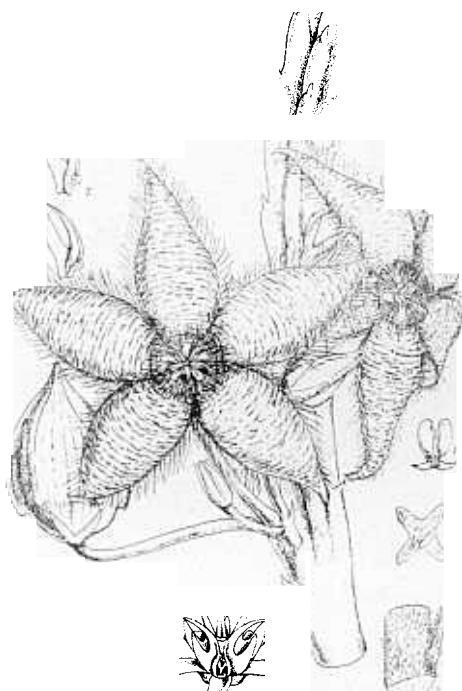


FIG. 572

Stapelia asterias var. *lucida* N. E. Brown x 0.

From Hooker's *Icones Plantarum*, 1890.

Var. a. *Stapelia asterias* var. *lucida* (de Candolle) N. E. Brown, *Flora Cap.*, iv. i. 952. 1909.

Stapelia lucida de Candolle, *Cat. Pl. Hort. Monsp.*, 148. 1813.

Stapelia stellaris Jacquin, *Stap.*, t. 48. 1806-19. *Nec* Haworth, 1812.

(Description by Dr. Brown, l.c.):

Corolla: entirely purplish-red or purple-brown without transverse markings on the lobes, sometimes dull greenish at the tips, very shining;

Outer corona: lobes dark purple-brown to nearly black, with or without greenish-ochre margins at the apical half;

Inner corona: lobes entirely very dark purple-brown or with paler tips as in the type, the dorsal wing free to the base or partly to almost entirely adnate to the inner horn, $1\frac{1}{2}$ to $2\frac{1}{2}$ lin. long, linear, linear-oblong, deltoid or deltoid-oblong, acute, obtuse or toothed at the apex and sometimes on the inner margin; inner horn $2\frac{1}{2}$ to 3 lin. long, triquetrous-subulate, acute to very obtuse, viewed sideways, straight or slightly recurving;

Follicles: parallel or slightly diverging, 5 to $7\frac{1}{2}$ in. long, 5 to 6 lin. thick, terete tapering at the base and into a beak at the apex; *seeds* 3 to $3\frac{1}{2}$ lin. long, $1\frac{1}{3}$ to $1\frac{1}{2}$ lin. broad, narrowly ovate, concave with thick incurved margins on one side, convex on the other, smooth, glabrous, light brown;

Otherwise as in the type.

of the corolla-lobes, so that the lobes have a distinct purple border; and third, the short purple hairs, which are irregularly present on the corolla-disk, sometimes extending out to the tips of the lobes, are conspicuously longer in five bands radiating from the centre of the disk to the sinuses between the lobes. These radiating bands, occasionally accentuated by a slight depression of the corolla fabric, are characteristic of all *Asterias*, including possible hybrids, whether they be prominently hairy, as in the type, or of a contrasting color, as in the var. *gibba*. The effect is clearly seen in the oddly six-lobed flower of Fig. 569, probably a hybrid. These radiating bands occur outside of the *Asterias* also in *S. hirsuta* var. *unguipetala*, which need cause no confusion because its corolla is not at all shiny. Again the shining corollas of the *Asterias* need cause no confusion with *S. peglerae*, for in the latter species the plant stems are always glabrous, while in the *Asterias* they are distinctly pubescent.

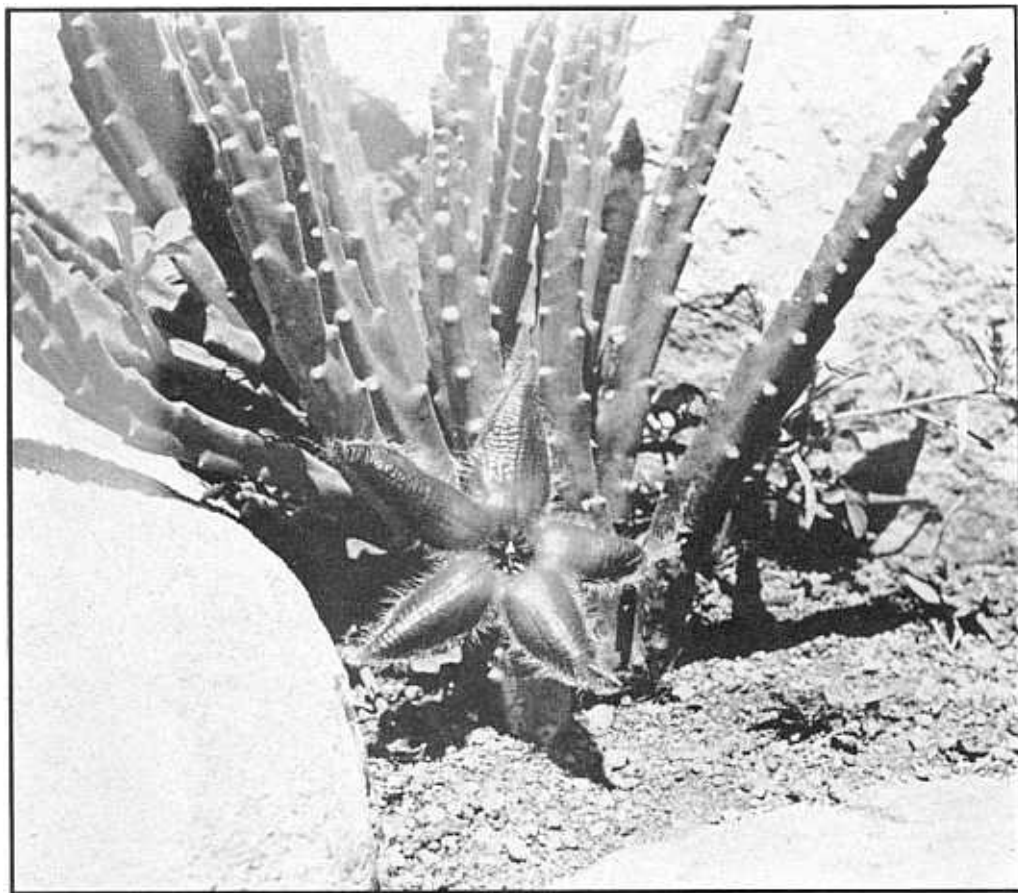


FIG. 573

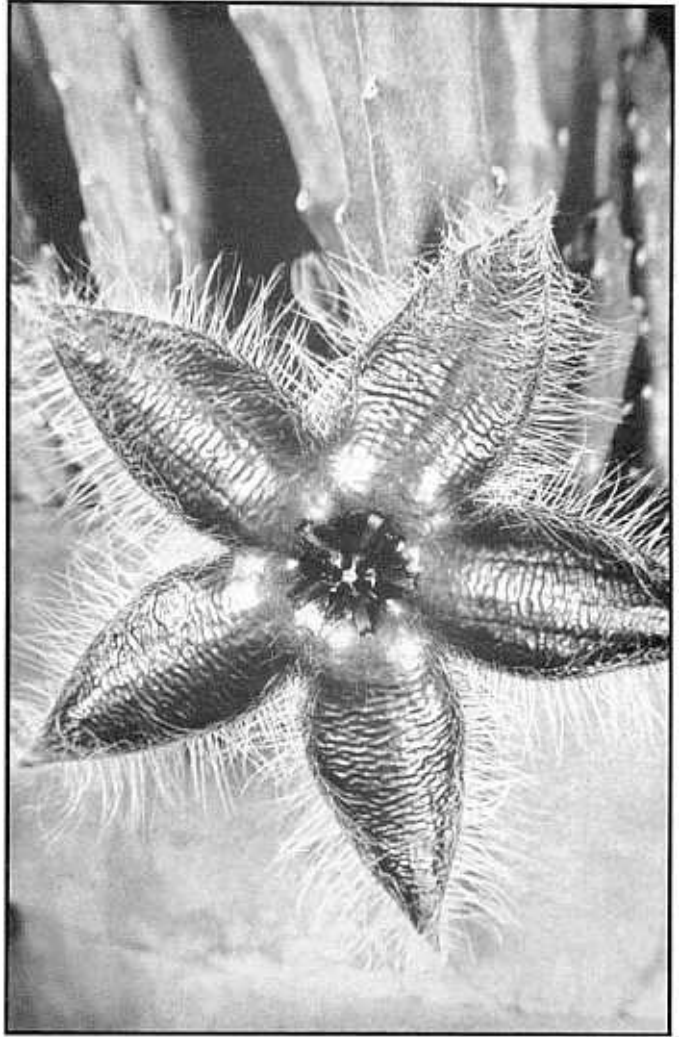
Stapelia asterias var. *lucida* N. E. Brown

Photo by R. H. N. Smithers of a plant from the Oudtshoorn district.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Albany Distr.: Manley Flats, near Grahamstown; George Distr.: Ezeljagts Poort; Great Brak River; Ladismith Distr.: on the road between Ladismith and Laingsburg; Laingsburg Distr.: Witte Poort; Prince Albert Distr.: Farm Drooge Vlei, towards Klaarstroom; Riversdale Distr.: Muis Kraal; ?Tembuland: Mqanduli; ?Willowmore Distr.; ?Worcester Distr.: Huisriverberg.

FIG. 574
Stapelia asterias var. *lucida*
N. E. Brown $\times 1.25$



The "shining Asterias" is the most frequent variety of this elusive species in the wild state. It is distributed at a number of points in the southern Karroo areas, beginning at about 1,000 feet elevation. It has been known since 1813, but its discoverer is quite forgotten. It differs from the type in the absence of transverse mark-

ings on the inner corolla surface, which is of a uniform shade of very shining purplish-red, sometimes with dull greenish tips to the lobes. The color is an extremely striking one, heightened in effect when the light reflects from the transverse rugosities of the corolla fabric.

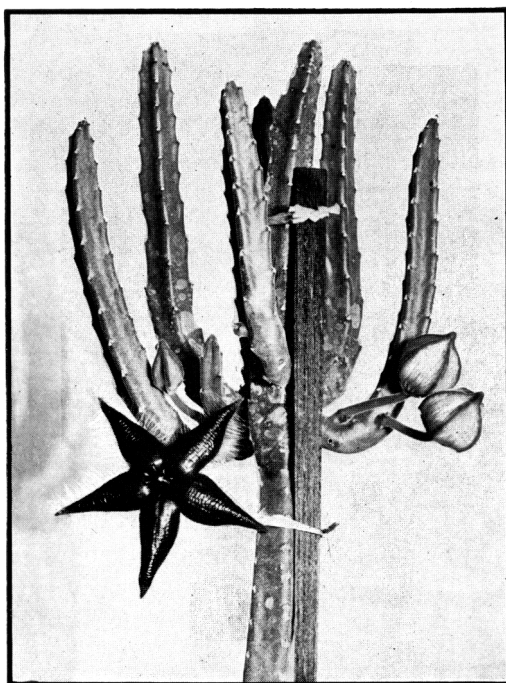


FIG. 575

Stapelia asterias var. *lucida* N. E. Brown x 0.4

The identification is uncertain, and the plant may be a hybrid.

Var. b. *Stapelia asterias* var. *gibba* N. E. Brown, Flora Cap., iv. i. 952. 1909.

(Description by Dr. Brown, l.c.):

Corolla: with the lobes extended about 3 in. in diameter, pale to dark vinous-purple, with the tips of the lobes, a border along their margins 1 to 1½ lin. broad and 5 stripes radiating to the sinuses all ochreous or dull greenish in color, without transverse yellow lines on the lobes; hairs on the disk "shorter and more purple" (*Pillans*) than in the var. *lucida*; lobes about 1¼ in. long, ⅔ in. broad, lanceolate, acuminate, with recurved but scarcely revolute margins, somewhat convexly humped just below the apex on the inner face, concave beneath;

Outer corona: lobes shortly bifid or 3-toothed at the apex, even in the same flower!;

Inner corona: lobes with the inner horn more or less recurved-spreading, acute or obtuse viewed sideways, sometimes slightly hooked at the apex;

Otherwise as in the type.

Type locality: Cape Prov.: Ladismith Distr.: along the road between Ladismith and Laingsburg.

Distribution: Not further known.

The "swollen Asterias," discovered by Mr. Pillans, derives its name from the convex form of the corolla-lobes on their inner face just below the apex. The color of the flowers is a vinous purple with a striking

pattern in ochreous green at the tips of the lobes, along their edges and in five bands radiating from the centre of the disk to the sinuses between the lobes. We have not met this variety in cultivation.

67. *Stapelia gariepensis* Pillans, So. Afr. Gard., xviii. 62. (Special reprint). 1928.

(Description by N. S. Pillans, l.c., translated from the Latin):

Stems: erect from a decumbent base, branching on the lower half, with sides slightly concave and angles scarcely compressed, minutely velvety, 10 to 15 cm. long, 1 to 1.5 cm. in diameter; rudimentary leaves erect-spreading, 1 to 1.25 mm. long;

Flowers: 1 to 2 on the lower half of the branches;

*Pedice*l: spreading or slanting down, velvety, 3.5 cm. long, 3 mm. in diameter;

Sepals: lanceolate, acute, minutely velvety, 5 to 6 mm. long;

Corolla: in bud ovate, acute; when expanded 8 to 9 cm. in diameter; *lobes* subreflexed, lanceolate-ovate, acute, 3.5 to 3.8 cm. long, 1.5 to 1.7 cm. broad, glabrous outside, convex within, transversely rugose, reddish-purple, shiny, obscurely marked with transverse yellow lines on the lower part, densely ciliate with long simple pale purple hairs, at the base and on the disk quite densely covered with soft purple hairs;

Outer corona: lobes 4 mm. long, erect-spreading, spreading or slightly recurved at the apex, linear-oblong, suddenly narrowed at the obtuse apex, channeled on the inner face, covered on the outer face with numerous short scattered hairs, blackish-purple, marked with dull yellow towards the apex;

Inner corona: lobes erect-spreading; dorsal wing free, lanceolate-oblong, obtuse, entire or toothed at the apex, purple-brown, about 4 mm. long; inner horn recurved-spreading almost from the base over the dorsal wing, triquetrous-subulate, obtuse, slightly channeled on the lower portion of the inner face, pale brown with purple spots.

Type locality: Cape Prov.: Little Namaqualand: at the base of the Grootderm hills, near the south shore of the Orange River.

Distribution: Not further known.

The "Orange River *Stapelia*" is allied to *Stapelia asterias*, differing chiefly in the longer and denser covering of hairs on the base of the lobes and corolla-disk, and to *S. peglerae*, from which it differs in having pubescent stems. It was discovered by Mr. Pillans during an expedition to Little Namaqualand in 1926. The name of the species derives from "Gariep," an early Dutch corruption of the native name, "Garib" or "Great Water," which the Hot-tentots gave to the Orange River, the river "whose waters always flowed." The reputation of the Orange River rests on its importance during the rainy season. At a time of heavy rains it often rises in places many feet in a few hours; in dry weather it can be crossed on a ten foot plank, and as it approaches the Atlantic its evapora-

tion is greater than the entire drainage of the vast area of its watershed so that its mouth is closed by a sand-bar for three-quarters of the year.

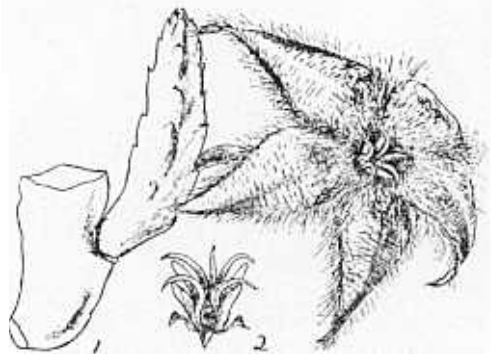


FIG. 576

Stapelia gariepensis Pillans x 0.75

From a drawing by L. Guthrie in South African Gardening and Country Life, 1928.

68. *Stapelia plantii* Hooker fil., Bot. Mag., t. 5692. 1868.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 947):

Stems: rather compact, 6 to 8 in. high, $\frac{3}{4}$ to $\frac{7}{8}$ in. square when fully developed, with the angles much compressed, shortly toothed, pubescent, green; rudimentary leaves about 1 lin. long, erect;

Flowers: 1 to 3 together at the base of the stems, developing successively;

*Pedice*l: 1 to $1\frac{1}{4}$ in. long, 2 lin. thick, pubescent;

Sepals: about 5 lin. long, lanceolate-attenuate, pubescent;

Corolla: $4\frac{1}{2}$ to 5 in. in diameter with the lobes extended, minutely pubescent on the back; inner surface transversely rugose, thinly covered with short erect purple hairs on the disk, glabrous on the lobes, which are about $1\frac{3}{4}$ in. long and 1 in. broad, lanceolate, acuminate, abruptly recurved at about $\frac{1}{3}$ above their base, thickly ciliate to their tips with long purple hairs, half of them directed inwards, dark purple-brown, more intense at the tips, with transverse irregular and often forked pale lemon-yellow lines (summits of the ridges) on the basal $\frac{2}{3}$ of the lobes; disk flattish with a slight central depression;

Outer corona: lobes ascending-spreading, straight, not recurved at the tips, about $2\frac{1}{2}$ lin. long, linear, deeply concave-channelled down the face, more or less 3-toothed at the apex, with the lateral teeth rounded, sometimes unequal and the middle tooth shortly subulate, blackish-purple, passing into dull orange at the base, minutely pubescent with blackish hairs on the middle tooth and down the middle of the back;

Inner corona: lobes blackish-purple, with the dorsal wing sometimes entirely adnate to and much shorter than the triquetrous-subulate acute erectly spreading and but slightly recurved inner horn, sometimes adnate for $\frac{1}{2}$ to $\frac{1}{3}$ of its length and produced above into a broad oblong free wing, more or less denticulate at the oblique obtuse apex and not much shorter than the inner horn, glabrous.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Albany Distr.: near Grahamstown; also near Uitenhage.

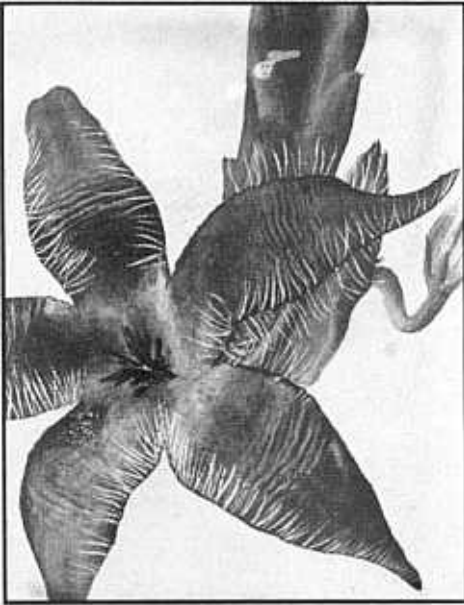


FIG. 577

Stapelia plantii Hooker fil. x 0.8

From a water color drawing by Carl Luckhoff

An interesting velvety-stemmed species. The flowers are 3 to 5 inches in diameter, purple-brown with yellow lines along the summits of the transverse rugosities, the disk with short purple hairs, the lobes glabrous, but heavily fringed. According to the drawing in Curtis's Botanical Magazine, the lobes have a broad pale purple margin. The inner corona-lobes are very variable, the dorsal wing sometimes long and broad and only $\frac{1}{3}$ to $\frac{1}{2}$ adnate to the inner horn, at other times very short and wholly adnate. The species is named for R. W. Plant, discoverer of *Stapelia gigantea*. It was sent to Kew in 1866 by Mr. Tuck from the Botanic Garden at Grahamstown, and has recently been collected again near that city and near Uitenhage. It is possible that its influence may be traced in some of the modern garden hybrids, for Dr. N. E. Brown, to whom we submitted Fig. 579,

wrote us that "these four numbers are possibly all seedlings or hybrid forms derived from *S. plantii*." Such hybrids at best can only derive very indirectly from *S. hirsuta* or *S. deflexa*, and it would be very convenient to have an intermediate group in which to place them and their innumerable relations.

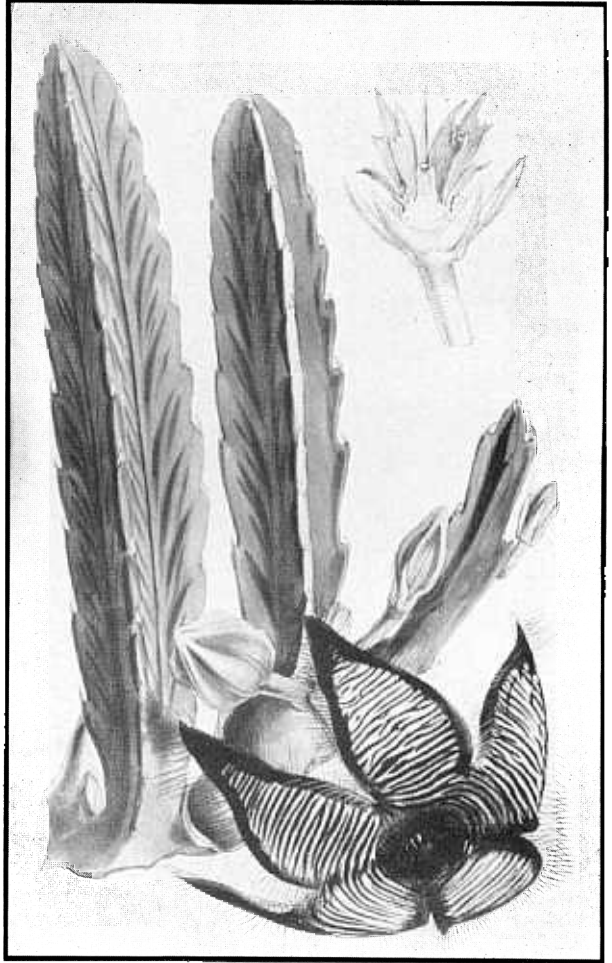


FIG. 578

Stapelia plantii Hooker fil. x 0.6

From a drawing by W. H. Fitch, in
Curtis's Botanical Magazine, 1868.

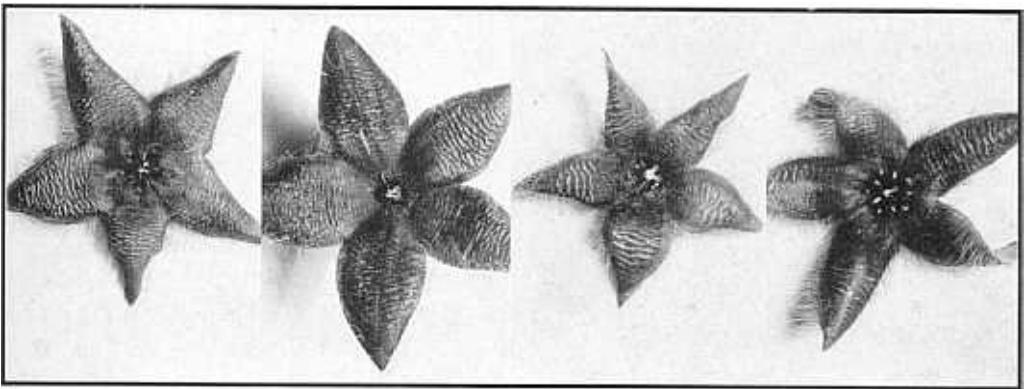


FIG. 579

Stapelia plantii Hooker fil. x 0.5

Possible hybrid forms.

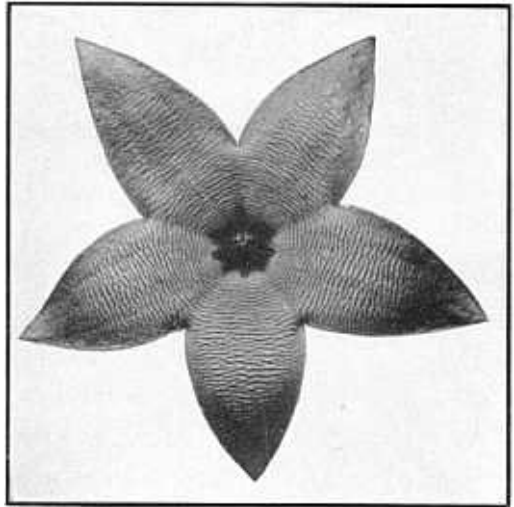


FIG. 580

Stapelia conformis N. E. Brown x 0.75

Photo: G. W. Reynolds, Johannesburg, of a flower from the plant shown in figure below.



FIG. 581

Stapelia conformis N. E. Brown x 0.2

Photo: G. W. Reynolds, of a plant in natural surroundings in Hell Poort, 16 miles northwest of Grahamstown, C. P. Note bud just opening at extreme left.

69. *Stapelia conformis* N. E. Brown, Flora Cap., iv. i. 959. 1909.

(Description by Dr. Brown, l.c.):

Stems: erect, 5 to 11 in. long, $\frac{3}{4}$ to $1\frac{1}{4}$ in. square, with much compressed toothed angles and rudimentary erect leaves 1 to 2 lin. long, velvety-puberulous, green, sometimes tinted with purplish;

Flowers: 2 to several together, successively developed from a short stout peduncle or cyme near the base of the young stems;

Pedicel: $\frac{1}{2}$ to 1 in. long, stout, velvety;

Sepals: 2 to 4 lin. long, lanceolate or ovate-lanceolate, acute, velvety;

Corolla: 3 to 4 in. in diameter, velvety on the back, transversely rugulose (except at the tips of the lobes) and glabrous or with a minute erect pubescence around the corona on the inner face, irregularly ciliate (sometimes very sparsely) on the very edge of the lobes with spreading white hairs 1 to 2 lin. long, mingled with others more minute; disk and basal half of the lobes sulphur-yellow or dull yellowish-green or yellowish-white marked with numerous crowded narrow irregular transverse purple-brown lines, margins narrowly bordered with and apical half of lobes entirely dark purple-brown, usually with a dull yellowish or greenish spot at apex; *disk* broadly and shallowly cup-like with a small star-like cavity at the centre; *lobes* very spreading and more or less recurved, 1 to $1\frac{1}{2}$ in. long, 8 to 9 lin. broad, ovate-lanceolate, acute or somewhat acuminate;

Outer corona: lobes ascending-spreading, scarcely recurved at apex, $2\frac{1}{2}$ to $3\frac{1}{2}$ lin. long, $\frac{2}{3}$ to $\frac{3}{4}$ lin. broad, linear, acuminate, acute or obtuse, with or without a minute apiculus, deeply channeled down the inner face, brownish-ochreous or purple-brown with paler margins;

Inner corona: lobes dark olive-brown or purple-brown, with the dorsal wing free to the base, ascending-spreading, 1 to 2 lin. long, $\frac{3}{4}$ to 1 lin. broad at the base, deltoid to oblong-linear, acute or obtuse, entire or toothed on the inner margin; inner horn connivent at the base, then recurving, sometimes with the tips incurved, $1\frac{1}{2}$ to 3 lin. long, triquetrous-subulate, acute.

Type locality: Cape Prov.: Albany Distr.: near Grahamstown.

Distribution: Also from Somerset East Distr.: near Cookhouse Station; Uitenhage Distr.: Cockscomb Mountains; Bedford Distr.; Natal: Zululand.

A beautifully colored species from the south-eastern portion of the Cape, some 75 miles north-east from Port Elizabeth, discovered by Thomas Cooper about 1860 and first described by his son-in-law, Dr. N. E. Brown, a half-century later. The name, the "similar *Stapelia*," refers to the similarity which the species bears to *Stapelia macowani*. It almost seems as if *S. conformis* must be merged with *S. macowani* as a variety, for the two have a very similar color pattern of wine-purple transverse lines upon a pale yellow-green ground, and they both have a very similar habitat. Yet it would be a pity if *S. conformis* had to be deprived of its specific rank and combined with a plant so little known as *S. macowani*, and there are fortunately sufficient differences for it to remain distinct, at least until a system embracing subspecies is worked out for the whole Stapeliad tribe. Its prin-

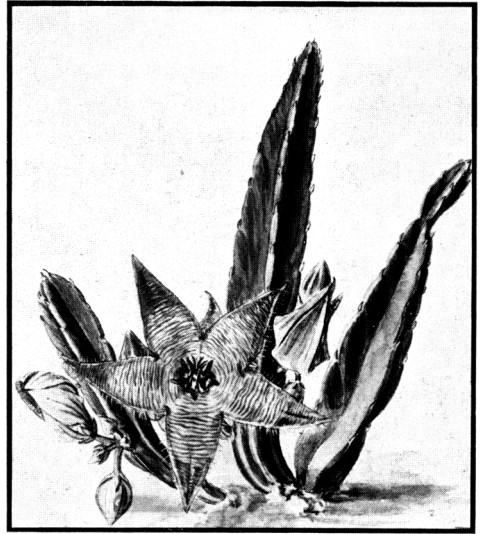


FIG. 582

Stapelia conformis N. E. Brown x 0.4

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932.

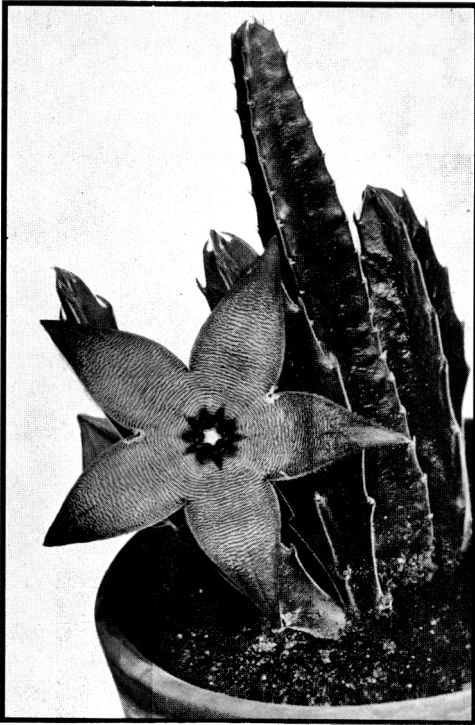


FIG. 583

Stapelia conformis N. E. Brown x 0.5

cial difference from *S. macowani* will be found in the inner corona-lobes, in which the inner horn is free to the base from the dorsal wing, instead of being wholly absorbed into it; the color scheme too is modified, the margins and tips of the lobes being a solid dark purple-brown; and finally the whole flowers are very much larger, attaining a maximum of four inches as against two and a half inches for *S. macowani*. In the type form of *S. conformis* the corolla-lobes are ciliate with an irregular fringe of white hairs; while in *S. macowani* the lobes are not ciliate at all, or only appear to be so from the short marginal pubescence on the back; but the matter of ciliation is not actually a criterion between the two species, for there is a var. *abrasa* of *S. conformis* which has no ciliation, and the specimens collected in Somerset East district constitute an intermediate form between the type and the variety, with the ciliation very sparse.

Var. a. *Stapelia conformis* var. *abrasa* N. E. Brown, Flora Cap., iv. i. 960. 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes without cilia and apparently more intensely colored than in the type, marked for $\frac{2}{3}$ of their length with yellowish lines and with a margin 1 lin. or more in breadth of dark purple-brown on their lower part;

Otherwise as in the type.

Type locality: Cape Prov.: Bedford Distr.: Patrys Hoogte, near the Great Fish River.

Distribution: Not further known.

Discovered by Prof. MacOwan.

70. *Stapelia macowani* N. E. Brown, Icon. Pl., t. 1920. 1890.

(Description by Dr. Brown, Flora Cap., iv. i. 960):

- Stems*: erect, 6 to 12 in. high, 1 in. square, with very compressed angles, not very prominently toothed and the rudimentary leaves appressed-erect, 1 to 1½ lin. long, velvety-puberulous;
- Flowers*: 3 to 4 or more together, near the base of the young stems, successively developed;
- Pedice*l: 2 to 5 lin. (in fruit up to 1¼ in.) long, densely velvety-pubescent;
- Sepals*: 2 to 3 lin. long, ovate-lanceolate, acute, densely velvety-pubescent;
- Corolla*: 2 to 2½ in. in diameter, with the disk depressed into a very broad shallow somewhat funnel-shaped tube, having 5 slight grooves radiating from the centre to the sinuses between the flattish ovate acute very spreading or slightly recurved lobes, shortly pubescent on the back, but not so densely as the sepals, glabrous on the transversely rugulose inner surface, not ciliate or only by the short marginal pubescence of the back, pale "greenish-white" (*MacOwan*), or pale yellowish, marked to the tips of the lobes with slender crowded transverse wine-purple or purple-brown lines, and suffused with purplish in the cup of the disk; lobes 9 to 11 lin. long, 7 to 8 lin. broad;
- Outer corona*: lobes ascending-spreading, slightly recurved at the tips, with the apex itself up-curved, 3 lin. long, 1 to 1¼ lin. broad, slightly obovate-oblong, obtuse with a small apiculus or slightly 3-toothed, channeled down the face, purple-brown, with paler margins and yellowish at the base;
- Inner corona*: lobes connivent-erect, 2 to 2¼ lin. long, 1½ lin. broad, entirely wing-like, broadly subobovate-oblong or subrectangular, entire, or slightly or distinctly notched at the more or less oblique apex, dark purple-brown;
- Follicles*: subparallel, about 5½ in. long and 10 lin. thick, fusiform, acute, puberulous.
- Type locality: Cape Prov.: Albany Distr.: Hell Poort and Bothas Berg.
- Distribution: Also from Jansenville Distr.: Loots Kloof.

A rare and interesting species, discovered by Prof. Peter MacOwan, probably about 1875, and named after him. The flowers differ from those of other species in the *Stapeltonia* section in that the inner corona-lobes are formed of a single wing-like part, the only vestige of an inner horn consisting of an occasional tooth-like projection at the upper edge of the oblique apex of the wing. Often there is no notch at all in the apex of the wing. The corolla face is strikingly colored, with vinous-purple transverse lines covering the entire surface upon a greenish-yellow or greenish-white ground. Prof. MacOwan described the flowers as odorless, but Sir Henry Barkly was more impressed. "While the odor is by no means strong," he wrote, "it resembles a slightly fermenting Stilton cheese."

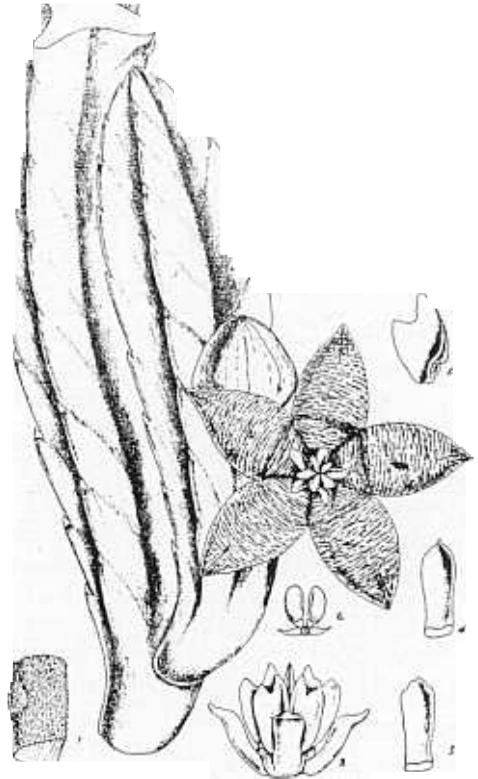


FIG. 584

Stapelia macowani N. E. Brown x 0.75

From Hooker's Icones Plantarum, 1890.

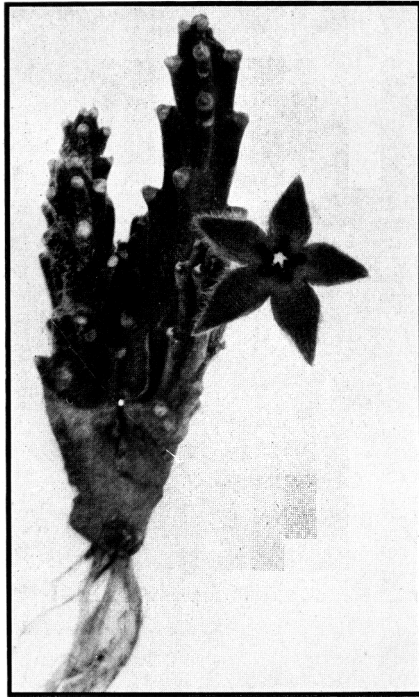


FIG. 585

Stapelia immelmaniae Pillans x 0.75

Photo by S. Tapscott.

71. *Stapelia immelmaniae* Pillans, So. Afr. Gard., xviii. 62. (Special reprint). 1928.

(Description by N. S. Pillans, l.c., translated from the Latin) :

Stems: erect, branching near the base, minutely velvety-puberulous, glaucous-green, square, 12 to 15 cm. high, 1.2 to 1.5 cm. in diameter, 4-angled; angles slightly compressed, obtuse, with quite prominent teeth; rudimentary leaves 2.5 to 3 mm. long;

Flowers: in cymes of 1 to 6 opening successively, situated between the angles on the upper half of the stems;

*Pedice*l: erect-spreading, velvety-puberulous, 1.5 cm. long, 2 mm. in diameter;

Sepals: lanceolate, acute, puberulous, 5 mm. long;

Corolla: in bud ovate, obtuse; when expanded 4 to 4.5 cm. in diameter; outside thinly velvety-puberulous, tinged with purple; inside *disk* almost flat, depressed at the centre, 1.1 to 1.3 cm. in diameter, transversely rugulose, covered with short soft pale purple hairs, pale olive-green with yellow lines; *lobes* 1.7 to 1.9 cm. long, 9 to 10 mm. broad, spreading, ovate-lanceolate, acute, convex above, dull purple with slightly raised transverse yellow lines, covered with short quite rigid sub-purple hairs and ciliate with simple sub-purple hairs 2 to 3 mm long;

Outer corona: lobes erect-spreading, oblong, abruptly acute, broadly channeled on the inner face, yellow below, blackish-purple above, 2 mm. long;

Inner corona: lobes 2 mm. long, incurved and at the base incumbent over the anthers, deep purple, sparingly dotted with yellow at the erect obtuse apex, triquetrous, with a spreading dorsal process like a wing, irregularly crenulate, about 1 mm. long.

Type locality: Cape Prov.: Piquetberg Distr.: on Piquetberg Mountain.

Distribution: Not further known.

This tall-stemmed plant is distinguished from its ally, *Stapelia deflexa*, by its smaller flowers produced on the upper parts of the stems, by the corolla-lobes being covered with hairs and by the wing-like dorsal seg-

ment of the inner corona-lobes. It was collected about 1927 by Mrs. Immelman of Piquetberg, 40 miles inland from Saldanha Bay, on the Piquetberg itself, and it is named in her honor.



FIG. 586

Stapelia immelmaniae Pillans x 0.8
From a drawing by L. Guthrie in South
African Gardening and Country Life,
1928.

72. *Stapelia bergeriana* Dinter, Neue Pfl. Deutsch-Südw.-Afr., 51. 1914.

(Description based on that by Prof. K. Dinter, l.c., translated from the German) :

Stems: in habit just like those of *Stapelia schinzii*, 7 to 10 cm. long, 1.5 to 2 cm. thick, softly pubescent, 4-angled; angles wing-like, compressed; leaves 2 mm. long, acute, 1 mm. broad at the base;

Flowers: from the lower part of the stems;

*Pedice*l: 4 cm. long, 5 mm. thick, standing out horizontally;

Sepals: 1 cm. long, reaching to the sinuses of the corolla, 3 mm. broad at the base;

Corolla: rather flat, rotate, lobed more than half-way down, measuring 5 cm. from the tip of a lobe to the opposite sinus, and 7.6 cm. from the tip of one lobe to that of an opposite lobe; *lobes* ovate, drawn out into long points, 16 mm. broad at the base; corolla light reddish-green outside, with five darker not prominent nerves; inside wholly smooth, with no trace of rugosities, faintly shiny, uniformly violet-red-brown, densely ciliate with purple hairs 4 mm. long;

Outer corona: lobes triangular-ovate, bluntly pointed, shining dark violet-brown;

Inner corona: lobes consisting of a connivent-erect inner horn, with an erect blunt broad dorsal wing equaling the inner horn in length.

Type locality: South West Africa: Great Namaqualand: without precise locality.

Distribution: Not further known.

Stapelia bergeriana was collected by Prof. Dinter in 1912 during a trip through the northern and central parts of Great Namaqualand. He supposed it to be the widely distributed *S. schinzii*, which it completely resembles in habit, and consequently he kept no record of where it had been found. Upon its flowering he was much surprised to observe a wholly distinct species, the flowers only 3 inches in diameter, the corolla entirely smooth within and faintly shiny, violet-red-brown in color, the lobes fringed with purple hairs. Prof. Dinter dedicated the species to his friend, Alwin Berger.

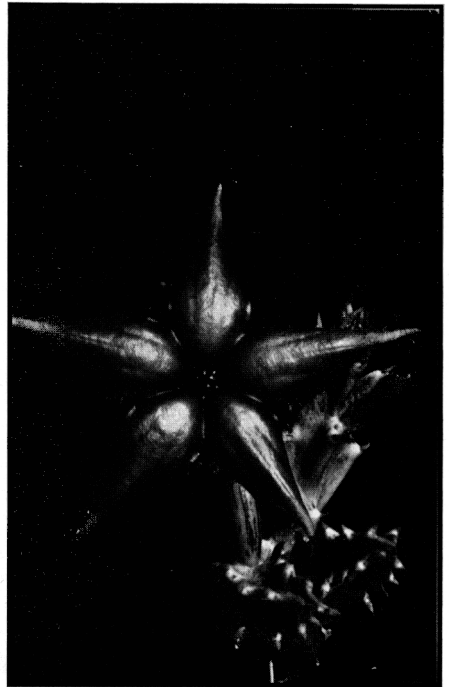


FIG. 587

Stapelia bergeriana Dinter x 0.75

Photo by Prof. Dinter in Neue Pfl. D. S.-W. Afr., 1914.

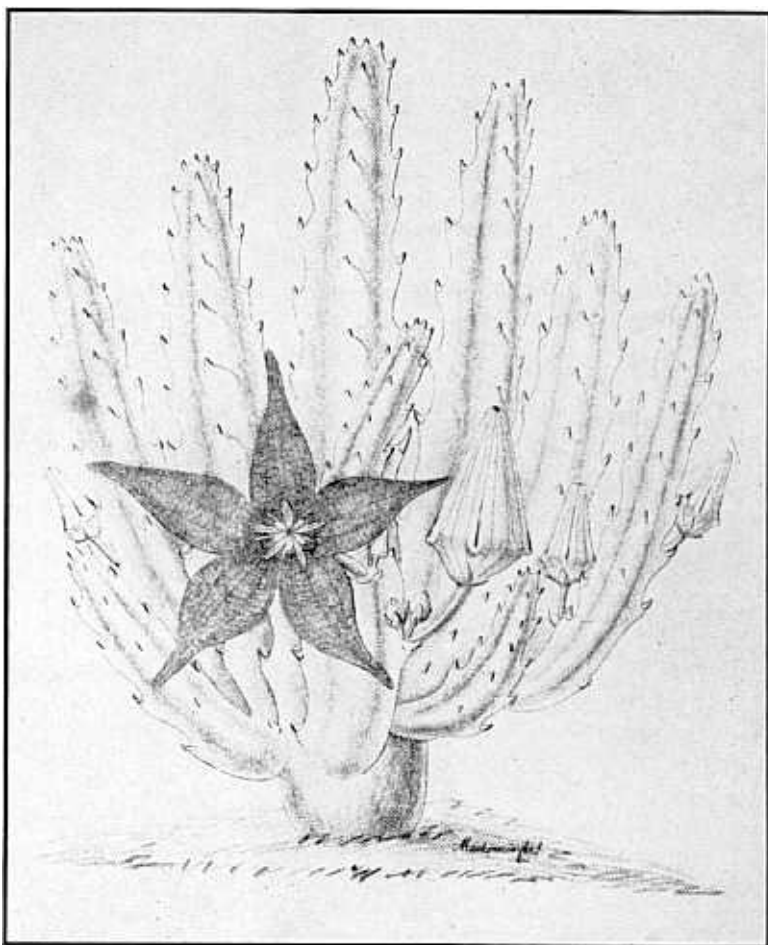


FIG. 588

Stapelia vetula Masson x 0.7From Masson: *Stapeliae Novae*, 1796.73. *Stapelia vetula* Masson, *Stap. Nov.*, 15. 1796.*Tridentea vetula* Haworth, *Syn. Pl. Succ.*, 35. 1812.(Description by Dr. N. E. Brown, *Flora Cap.*, iv. i. 963):

Stems: erect, obtusely 4-angled, 4 to 6 in. high, 6 to 7 lin. square, with a rather thin and exceedingly minute pubescence, green; teeth tipped with incurved-erect rudimentary leaves $\frac{1}{2}$ to 1 lin. long;

Flowers: 1 to 3 together near the base or the clusters scattered along the sides of the young stems, successively developed;

Pedicel: 6 to 10 lin. long, about 1 lin. thick, glabrous;

Sepals: 2 to 3 lin. long, lanceolate, acute, glabrous;

Corolla: in bud conically pointed; when expanded $2\frac{1}{2}$ to $2\frac{3}{4}$ in. in diameter, flattish or with recurved lobes, glabrous on the smooth back and on the transversely rugose inner surface, not ciliate, purplish-tinted on the outside, uniformly blackish-purple without markings on the inner face; lobes $1\frac{1}{6}$ to $1\frac{1}{4}$ in. long, 6 to $7\frac{1}{2}$ lin. broad, ovate-lanceolate, acute or acuminate, with 3 to 5 longitudinal depressed veins on the inner face;

Outer corona: lobes $2\frac{1}{2}$ to 3 lin. long, $\frac{3}{4}$ lin. broad, linear-oblong, acute or obtuse and apiculate, dull reddish, with ochreous margins;

Inner corona: lobes 2-horned, blackish, with the inner horn connivent at the base, then recurved in an arc, about 4 lin. long, subulate-filiform; outer horn spreading, very small, $\frac{1}{2}$ to 1 lin. long, crest- or wing-like, shortly deltoid, acute or obtuse.

Type locality: Cape Prov.: Worcester Distr.: mountains near Hex River.

Distribution: Not further known.

Stapelia vetula was discovered by Masson in the mountains near Hex River at the extreme westerly end of the Great Karroo. It remained in cultivation in England and on the Continent until about 1815. Two varieties have been described, based on early drawings of cultivated specimens, but these are perhaps to be regarded as hybrids rather than as natural varieties. Presently the species vanished altogether. The specific name means "Little old woman." The corolla-lobes have several depressed veins

running down the inner face. The suggestion that these resemble human wrinkles is a little far-fetched, but it may have been in Masson's mind when he christened the plant. Dr. Sims more prosaically called the plant the "dingy-flowered *Stapelia*." The $2\frac{1}{2}$ -inch flowers are uniformly blackish-purple, without markings, wholly glabrous and not ciliate. The inner corona-lobes are 2-horned, the outer horn spreading like a very small wing or crest.

Var. a. *Stapelia vetula* var. *simsii* (Haworth) N. E. Brown, Flora Cap. 96.
1909.

Stapelia vetula Sims, Bot. Mag., t. 1234. 1809. Nec Masson, 1796.

Tridentea simsii Haworth, Syn. Pl. Succ., 36. 1812.

Stapelia simsii Schultes, Syst. Veg., vi. 33. 1820.

According to Dr. Brown, the "Sims variety" differs from the type only in having the "outer horn of the inner corona-lobes half as long as the inner horn, wing-like, irregularly deltoid-linear, slightly toothed on the inner margin."

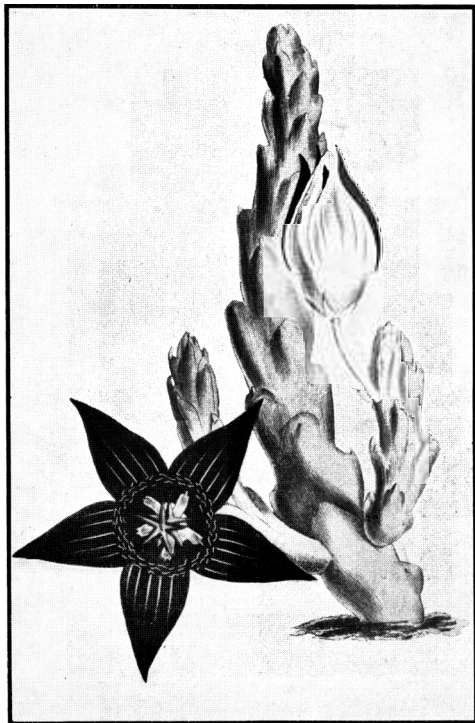


FIG. 589

Stapelia vetula var. *simsii* N. E. Brown x 0.6
from Curtis's Botanical Magazine, 1890.

Var. b. *Stapelia vetula* var. *juvencula* (Jacquin) Berger, Stap. und Klein., 282. 1910.

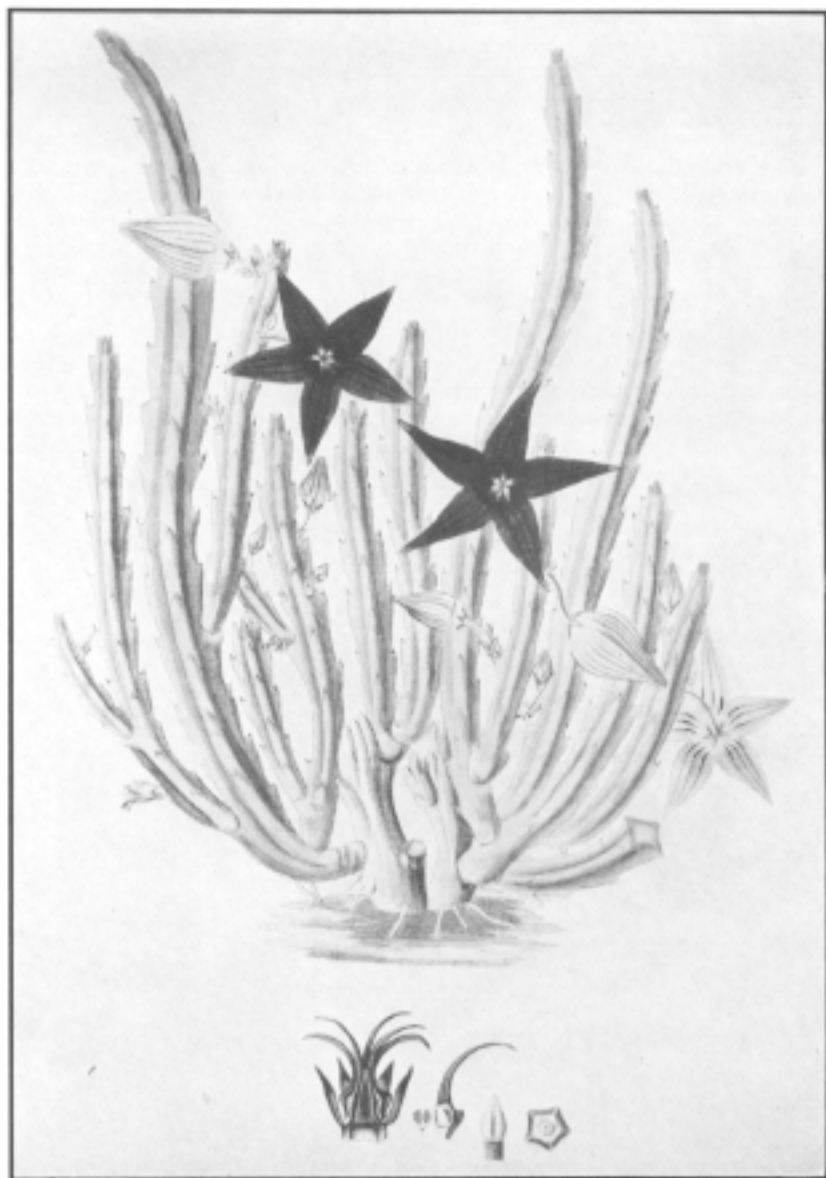
Stapelia juvencula Jacquin, Stap., t. 28. 1806-19.

Tridentea juvencula Sweet, Hort. Brit., 1 Ed., 277. 1827.

FIG. 590

Stapelia vetula
var. *juvencula*
Berger x 0.5

From Jacquin:
Stapeliarum
Descriptiones,
1806-19.



The combination of botanical names sometimes produces amusing results. The "young girl variety of the old woman *Stapelia*" would, by its name, lead one to expect some very much rejuvenated appearance in the whole flower; but it turns out

that the only distinction from the type consists in the inner corona-lobes being gracefully recurved at the tip, with a short protuberance at the base instead of the distinct wing-like, sometimes toothed, outer horn.

74. *Stapelia nudiflora* Pillans, So. Afr. Gard., xviii. 62. (Special reprint). 1928.

(Description by N. S. Pillans, l.c., translated from the Latin):

Stems: 10 to 15 cm. high, 1 to 1.4 cm. in diameter, ascending, square; angles slightly compressed, obtuse, glabrous or with the teeth puberulous as seen under a lens, glaucous-green; rudimentary leaves about 1 mm. long;

Flowers: few in a fascicle near the base of the young stems, developed successively;

Pedicel: about 1 cm. long, spreading, minutely puberulous;

Sepals: lanceolate, acute, glabrous, 4 to 5 mm. long;

Corolla: when expanded 5.8 cm. in diameter, glabrous on both sides; *tube* 6 mm. long, funnel-shaped, light purple-brown, sparingly marked with transverse yellow lines; *disk* about 3 mm. across from the mouth of the tube to the base of the lobes, slightly convex, depressed towards the sinuses between the lobes, with short scarcely raised pale yellow lines; *lobes* recurved from not much above the base, lanceolate-ovate, acute, transversely rugose, with purple lines and on the lower half with transverse pale yellow lines, not ciliate;

Outer corona: lobes erect-spreading, oblong, acute, concave on inner face, blackish-purple;

Inner corona: lobes formed of a blackish-purple horn with a dorsal wing at the base; horn slightly incurved and connivent below, triquetrous-subulate obtuse above, about 3 mm. long; wing spreading, deltoid-oblong, subacute, entire or toothed at the inner edge near the apex, 4 to 5 mm. long, 1½ mm. broad at the base.

Type locality: Cape Prov.: Montagu Distr.:
Southey's Pass.

Distribution: Not further known.

Discovered about 1923 by Prof. R. H. Compton and F. J. Cook in Southey's Pass, Montagu district. The plant has an attractive, though rather small, flower, distinguished as the name suggests by its "naked" or completely hairless corolla. The yellowish transverse lines on the disk and at the base of the lobes are quite faint, so that at first glance one would assume that the color was solid.

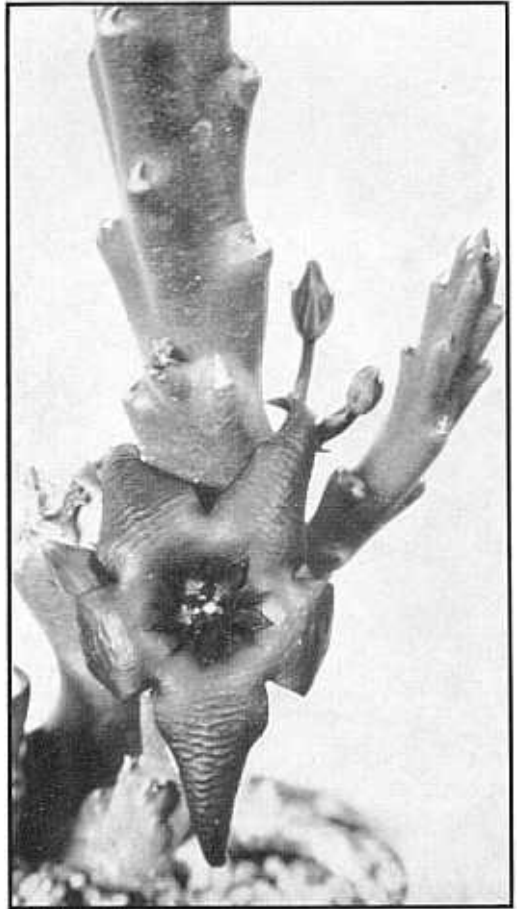


FIG. 591

Stapelia nudiflora Pillans x 1.25

75. *Stapelia tsomoensis* N. E. Brown, Gard. Chron., xviii. 168. 1882.

Stapelia glabricaulis Schlechter, Journ. Bot., 483. 1898. *Nec* N. E. Brown, 1890.

Stapelia tomentosa Hort., White et Sloane: Stap., 1 Ed., 87. 1933.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 954):

Stems: 4 to 6 in. high, 5 to 8 lin. square, with compressed somewhat repand-dentate angles, opaque green, glabrous to the eye and touch, but very minutely puberulous on the angles viewed through a lens; rudimentary leaves erect, 1 lin. long, ovate, acute, minutely puberulous;

Flowers: 4 to 9 together near the base of the young stems, successively developed;

Pedicel: $\frac{3}{4}$ to 1 in. long, velvety-puberulous;

Sepals: 3 lin. long, lanceolate, acuminate, velvety-puberulous, usually ciliate with much longer hairs;

Corolla: in bud globose, very obtusely pointed; when expanded and the lobes extended $2\frac{1}{2}$ to 3 in. in diameter, minutely puberulous on the nerves of the glabrous light green back; inner face with a few slightly raised transverse ridges on the apical half of the lobes, entirely dull smoky-purple and darker at the tips of the lobes, or with some of the ridges greenish or dirty yellowish; *disk* flattish and with the base of the lobes covered with long soft simple somewhat appressed dark purple hairs; *lobes* 1 to $1\frac{1}{6}$ in. long, 7 to 8 lin. broad, ovate-lanceolate, acute, strongly recurved, not revolute at the margins, ciliate with long simple purple hairs, partly directed inwards;

Outer corona: lobes about $2\frac{1}{2}$ lin. long, ascending-spreading with recurved tips, oblong-linear, obtuse and mucronate or acuminate, concave down the face, purplish-black or dark purple-brown;

Inner corona: lobes purplish-black or dark purple-brown, divided into a free ascending-spreading deltoid or linear or somewhat attenuate acute dorsal wing 1 to 2 lin. long and a subulate-filiform inner horn 3 to 4 lin. long, connivent at the base, then recurving, often over and beyond the tips of the dorsal wings.

Type locality: Cape Prov.: Transkei: near Tsomo.

Distribution: Not further known.

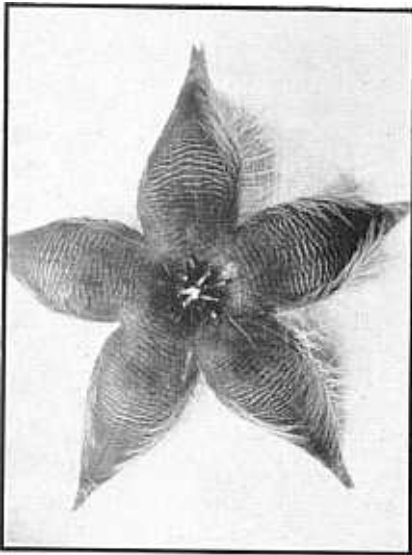


FIG. 592

Stapelia tsomoensis N. E. Brown, x 0.75

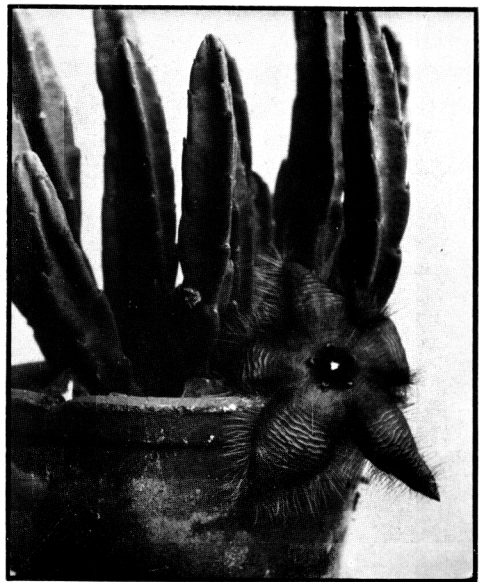


FIG. 593

Stapelia tsomoensis N. E. Brown, x 0.6

Photo by F. Wiedemann.

Stapelia tsomoensis, probably first collected by Henry Bowker in Sir Henry Barkly's day, takes its name from its home-town of Tsomo, a small settlement in the Transkei. The stems appear wholly glabrous, but seen through a lens they reveal a minute pubescence along the angles. The odd specific name has in some cases been corrupted to a popular form, *S. tomentosa*, which is not inappropriate, as the corolla-disk and the base of the lobes are decidedly tomentose with long simple purple hairs.

The lobes are also fringed with the same. The flowers are dull smoky-purple, rugose, the ridges of the same color or sometimes greenish-yellow. Dr. R. Schlechter united *S. tsomoensis* as a synonym to *S. glabri-caulis*, but it can be distinguished by the slight pubescence of the stems, the smaller flowers, the duller coloring and occasional yellowish markings, and the fact that the lobes often are strongly recurved at the tips, though not revolute at their margins.



FIG. 594

Stapelia tsomoensis N. E. Brown x 0.6
From Hooker's *Icones Plantarum*, 1890.

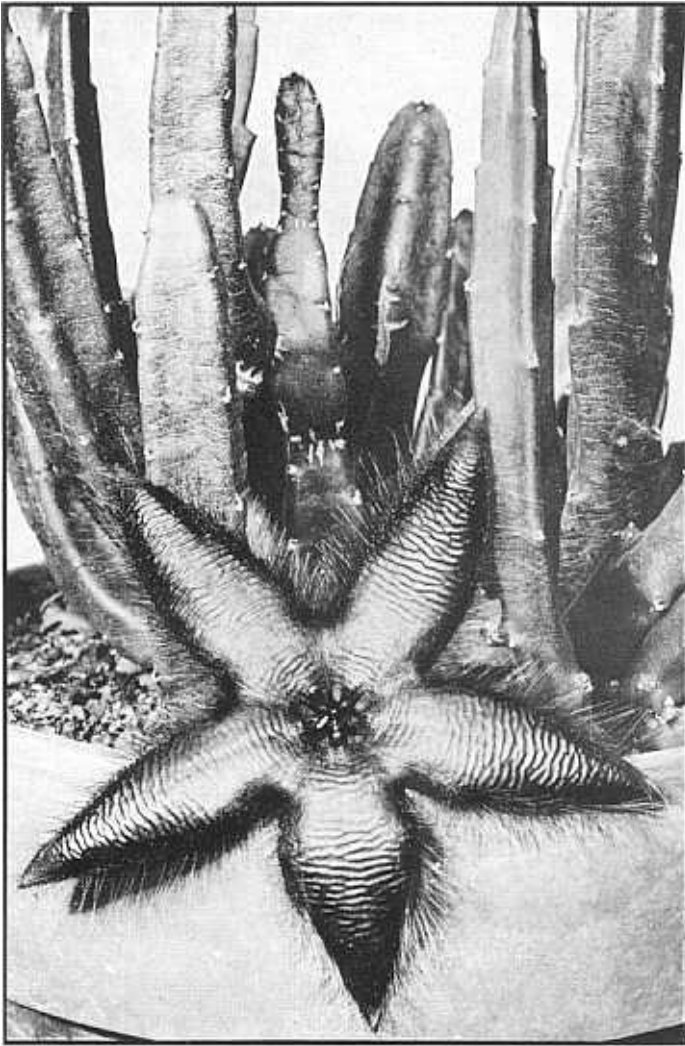


FIG. 595

Stapelia peglerae N. E. Brown x 1

76. *Stapelia peglerae* N. E. Brown, Flora Cap., iv. i. 953. 1909.

(Description by Dr. Brown, l.c.):

Stems: erect, 5 to 6 (or more?) in. high, probably about $\frac{1}{2}$ in. square, with scarcely prominent teeth and rudimentary erect leaves about $\frac{1}{2}$ lin. long, quite glabrous;

Flowers: (unattached) 3 to 4 together, successively developed;

Pedicel: about $1\frac{1}{2}$ in. long, minutely and thinly puberulous;

Sepals: 3 lin. long, lanceolate, very acutely acuminate, glabrous or nearly so, with a few very minute hairs on the margins;

Corolla: $2\frac{1}{2}$ in. (or more?) in diameter, with lanceolate acute lobes 1 in. (or more?) long, apparently transversely rugose and dark purple-brown on the inner face, glabrous on both sides, ciliate to the tips with long simple purple hairs, half of them directed inwards; disk with 5 rows of long simple hairs radiating to the sinuses between the lobes, and thinly or shortly

pubescent with erect soft hairs around the corona only;

Outer corona: lobes $2\frac{1}{3}$ to $2\frac{1}{2}$ lin. long, linear, acuminate, dark purple-brown;

Inner corona: lobes with the outer horn or dorsal wing free to the base, ascending-spreading, about $2\frac{1}{3}$ lin. long, $\frac{1}{2}$ lin. broad at the base, tapering to the acute apex, entire, dark purple-brown; inner horn recurved-spreading from close to the base over the dorsal wing, 3 lin. long, triquetrous-subulate, acute, dark purple-brown at the base, paler or becoming yellowish at the apex.

Type locality: Cape Prov.: Tembuland: Mqanduli, on dry rocky ground, near stream.

Distribution: Not further known.

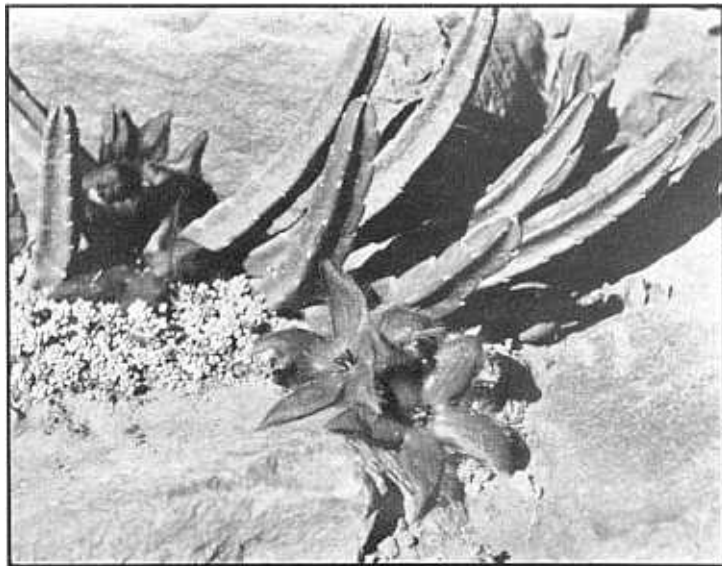


FIG. 596

Stapelia peglerae N. E.
Brown x 0.3

Photo by S. Tapscott.

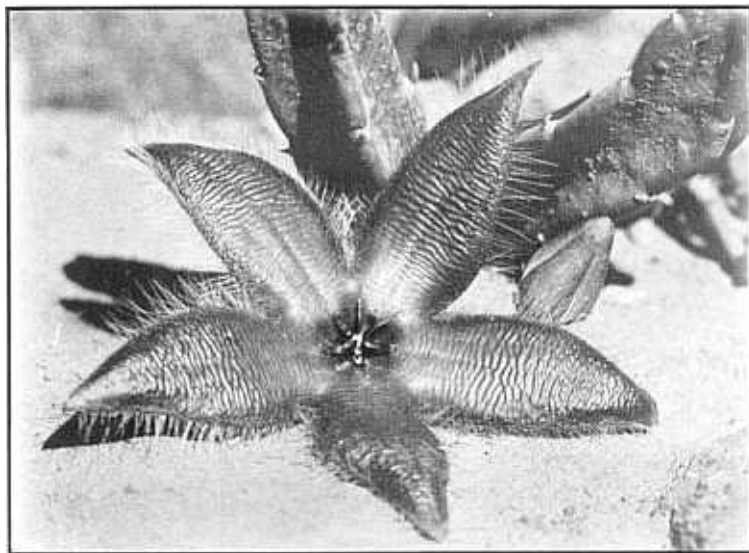


FIG. 597

Stapelia peglerae N. E.
Brown x 1.

Photo by S. Tapscott.

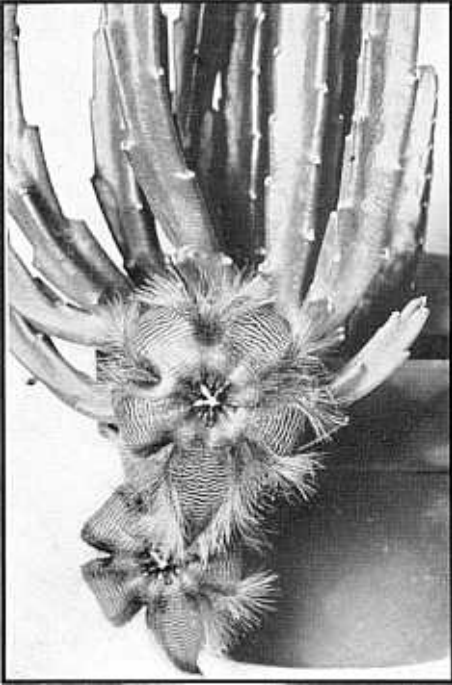


FIG. 598

Stapelia peglerae N. E. Brown x 0.5
Form with transverse lines on corolla-lobes.

Discovered by the late Miss Alice Pegler, the well-known botanist of Kentani in the Transkei. She collected it about 1900 in Tembuland, in the eastern part of the Cape Province. It is a conspicuous species for its glabrous stems and the shiny inner corolla surface of its flowers. It grows on dry rocky slopes and stands full sunlight well in cultivation. It is a free bloomer, the corolla purple-brown, pubescent around the corona and with five bands of long hairs radiating from the centre to the sinuses between the lobes, a feature reminiscent of *Stapelia asterias*. The corolla-lobes are without markings in the type and ciliate to their tips with simple purple hairs. Occasionally plants are found which seem to belong to this species, having some few transverse yellowish lines on the corolla-lobes, but these doubtless betray some hybrid influence. The corona of "Miss Pegler's *Stapelia*" is a very handsome one, the inner corona-lobes with the dorsal wing free to its base, tapering slenderly to its acute apex, the inner horn recurving gracefully over the tip of the wing.

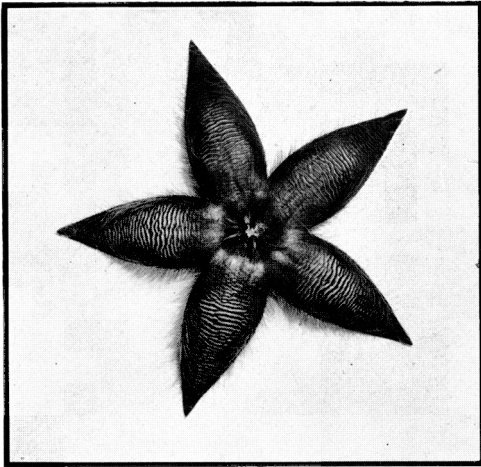


FIG. 599

Stapelia peglerae N. E. Brown x 0.75

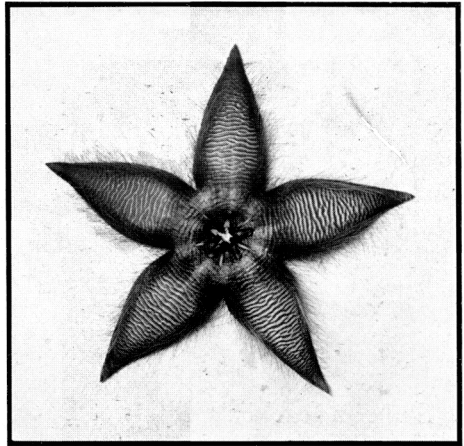


FIG. 600

Stapelia peglerae N. E. Brown x 0.75
Form with transverse lines on corolla-lobes



FIG. 601

Stapelia forcipis Phillips et Letty x 1.

From the original water color drawing by Miss Cythna Letty for the
Flowering Plants of South Africa, 1932.

77. *Stapelia forcipis* Phillips et Letty, Flow. Pl. So. Afr., t. 460. 1932.

(Description by Dr. E. P. Phillips and Miss C. Letty, l.c.):

Plant: 14 cm. high; *stems* light green in color, loosely branching, decumbent at the base, glabrous; angles much compressed, with erect rudimentary leaves 2 to 3 mm. long, and 1.5 mm. broad;

Flowers: solitary at the base of the young stems;

Pedice: 5 cm. long, glabrous;

Sepals: 6 mm. long, 3 mm. broad at the base, glabrous;

Corolla: 7 cm. in diameter, green with distinct veins and glabrous beneath, pilose, with long whitish-brown hairs above; hairs on disk and half-way up the lobes; lobes 2.8 to 3 cm. long, 1.8 cm. broad, ovate, acuminate, ciliate with long white hairs;

Corona: 1.5 cm. in diameter, 1.1 cm. high;

Outer corona: lobes 5, deeply divided to the base, with the segments 5 mm. long, 1 mm. broad, oblong-linear, acuminate, incurving and crossing at the tips, slightly channeled down the face;

Inner corona: lobes 5, 8 mm. long, bent over the anthers and then recurving, pointed at the apex, with a flattish dorsal wing 4 mm. long.

Type locality: Cape Prov.: Port Elizabeth Distr.?

Distribution: Unknown.

The "pincers *Stapelia*" is a plant with glabrous stems and flowers closely related to those of *Stapelia glabricaulis*. According to the authors it differs "in having the outer corona-lobes deeply divided, so that the outer corona appears to consist of 10 lobes. The tips of the lobes curve inwards, so that they resemble a pair of pincers. The

flower is very striking and handsome, and the plant itself quite easy to cultivate." The origin of the plant is not known. It was found about 1932 in the collection of our collaborator, David Pringle, in Port Elizabeth, and may be native to that district, or it may possibly be only a freak form or hybrid of *S. glabricaulis*.

Stapeli. glabricau.

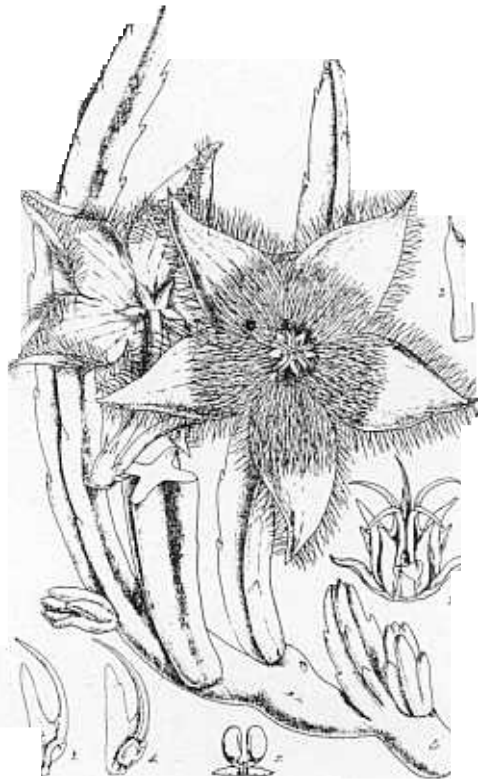


FIG. 602

Stapelia glabricaulis N. E. Brown x 0.8
From Hooker's 'Icones Plantarum, 1890.

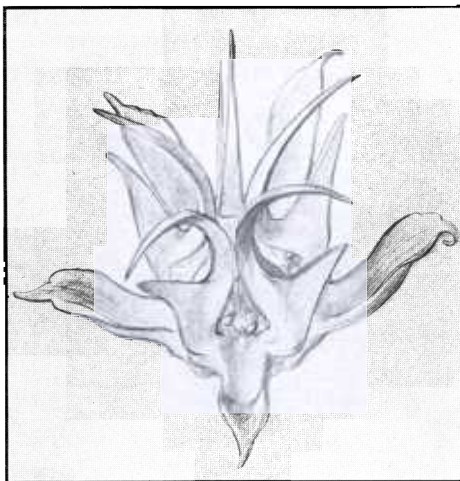


FIG. 603

Stapelia glabricaulis
N. E. Brown

Enlargement of the corolla
from a drawing by Miss
Cythna Letty for the
Flowering Plants of
South Africa, 1936.

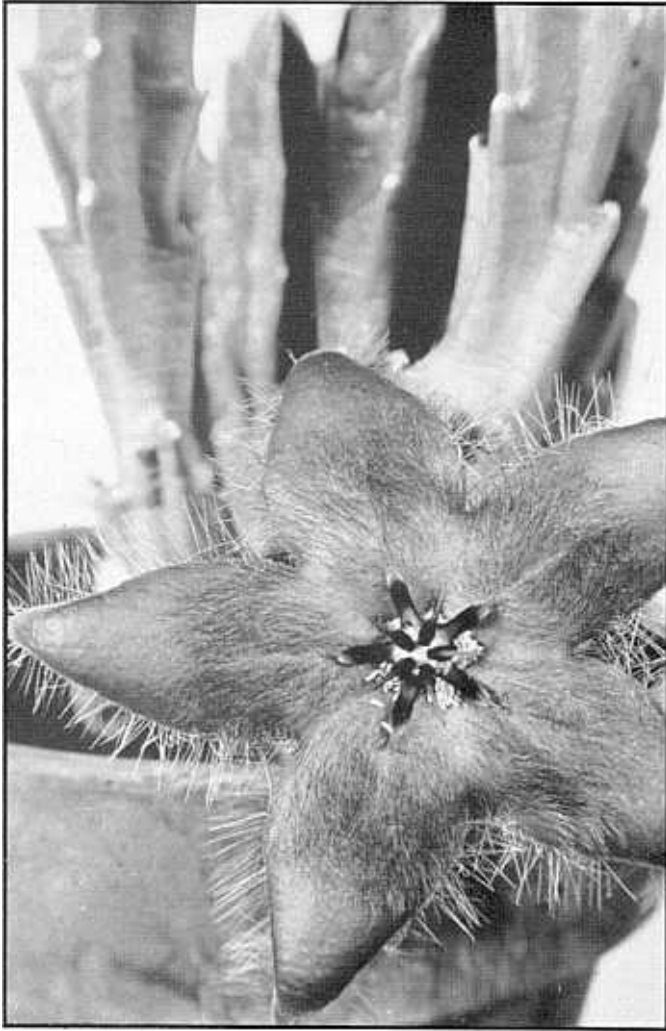


FIG. 604

Stapelia glabricaulis N. E. Brown x 1.3

78. *Stapelia glabricaulis* N. E. Brown, Icon. Pl., t. 1917. 1890.

(Description by Dr. Brown, Flora Cap., iv, i. 953):

Stems: rather loosely branching, decumbent at the base, 4 to 8 in. high, $\frac{1}{2}$ to $\frac{2}{3}$ in. square, with the angles much compressed, quite glabrous, green; teeth with erect rudimentary leaves 1 to $1\frac{1}{2}$ lin. long;

Flowers: 2 to 5 together, towards the base of the young stems, successively developed or sometimes 2 expanded at the same time;

*Pedice*l: 1 to 2 in. long, $1\frac{1}{2}$ lin. thick, glabrous or with very few minute scattered hairs only noticeable under a lens;

Sepals: 4 to 6 lin. long, lanceolate, acuminate, with a slight protuberance at the base, glabrous on the back, usually with a few hairs on the inner surface and sometimes on the margins;

Corolla: subglobose in bud, with 5 depressions just below the obtusely pointed apex; when expanded $2\frac{1}{2}$ to $3\frac{1}{2}$ in. in diameter, with stellately spreading (not recurved) lobes $1\frac{1}{4}$ to $1\frac{1}{3}$ in. long, about $\frac{3}{4}$ in. broad, ovate-oblong, acute, with revolute margins, ciliate to their tips with long simple pale purple hairs, half of them directed inwards, glabrous on the back, transversely rugose and reddish-purple without markings on the inner face, becoming paler and somewhat ochreous at the centre, glabrous on the terminal half of the lobes, with their basal half and the disk densely covered with long fine silky purple or greyish-purple hairs, which are more or less appressed and directed towards the tips of the lobes;

Outer corona: lobes spreading, recurved at the tips, $2\frac{1}{2}$ to 3 lin. long, linear, variably obtuse, apiculate, erose, minutely 3-toothed or more rarely acuminate at the apex, purplish-brown with a yellow base and sometimes yellow-brown margins;

Inner corona: lobes dark purple-brown, with the dorsal wing free to the base or adnate up to half its length to the inner horn, ascending, $2\frac{1}{2}$ to 3 lin. long, $\frac{2}{3}$ to $\frac{3}{4}$ lin. broad at the base, gradually tapering to the acute apex, or oblong-linear and acute or slightly toothed at the apex; inner horn $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. long, triquetrous-subulate, acute, erect below, with the apex recurved (often rather suddenly) over the dorsal wing;

Follicles: $4\frac{1}{2}$ in. long, 7 to 8 lin. thick, fusiform, acute.

Type locality: Cape Prov.: King Williams Town Distr.: Keishkama River; etc.;

Distribution: Also from Fort Beaufort Distr.: Blinkwater; Bathurst Distr.: near Port Alfred; Tembuland: Mqanduli.

This is the second of the *Stapeltonias* with wholly glabrous stems and its name means simply "the glabrous-stemmed *Stapelia*." It was discovered by Mrs. Barber in the region near King Williams Town, known in her day as "Kaffraria," growing at the edges of woods or under large bushes in shady localities, along the Keishkama River and the lower Fish River. It is not infrequently collected to-day and always arouses attention by its uniformly reddish-purple flowers, somewhat ochreous at the centre. The flowers average three inches in diameter and have the disk and lower half of the corolla-lobes densely coated with silky purple hairs and the lobes ciliate to the tip with long pale purple hairs. The dark purple-brown corona is related to that of *Stapelia peglerae*, especially in the manner in which the inner horn of the inner corona-lobes bends gracefully outward over the acute dorsal wing.

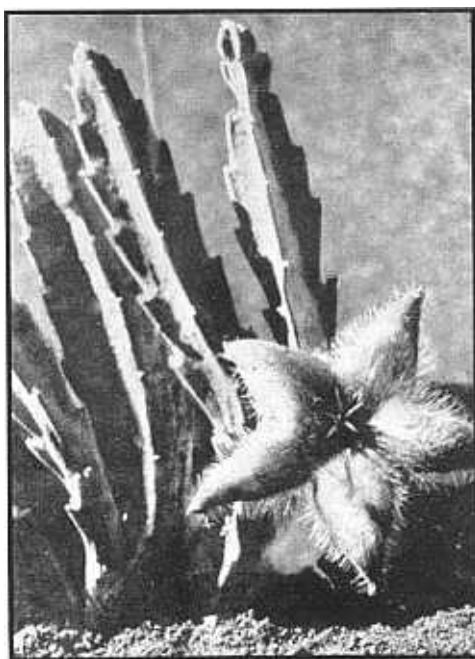


FIG. 605

Stapelia glabricaulis N. E. Brown x 0.75
Courtesy Cape Times.



PLATE XVI.

Stapelia glabricaulis N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa. 1936.

79. *Stapelia herrei* Nel, Kakteenkunde, 69. 1933.

(Description by Prof. G. C. Nel, l.c., translated from the German):

Plant: tufted; *stems* 7 to 12 cm. long, erect, glabrous, subquadrate in cross-section, brown-greenish, about twice as broad at the base as at the apex, with tiny leaves, which resemble small teeth;

Flowers: solitary, from the upper part of the stems;

Pedicel: 2½ to 4 cm. long, erect;

Sepals: 4 to 5 mm. long, oblong to lanceolate, acute;

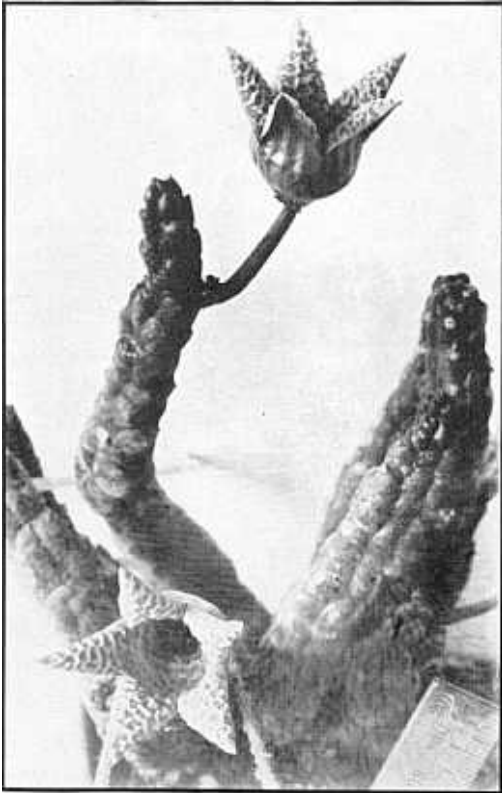
Corolla: in bud 3 cm. long; when expanded 3 to 4 cm. in diameter, with the inner face turned upwards, distinctly campanulate; *lobes* lanceolate, acute, 1½ cm. long, 1 to 1½ cm. broad, extremely rugose on inner face, the ridges white and the areas between light brownish-purple; *tube* less prominently rugose and wholly purple;

Outer corona: lobes oblong, sinuate, purple, 1 to 2 mm. long;

Inner corona: lobes formed of 2 clavate horns, intergrown at the base; outer horn 2 mm. long; inner horn 4 mm. long; the corona is somewhat yellowish on the inner side, but otherwise deep purple.

Type locality: Cape Prov.: Little Namaqualand: Richtersveld: Stinkfontein.

Distribution: Not further recorded.



Discovered in Little Namaqualand in October, 1930, by H. Herre, growing under bushes on the slopes near Stinkfontein, but not descending into the valley. It is named in honor of Mr. Herre. The bell-shaped flowers grow near the tips of the stems and turn their faces directly upwards. They are singularly wrinkled in texture, a character emphasized by the slight folding back of the margins of the lobes, so that the white wrinkles stand out prominently amid the light brownish-purple color of the sunken areas between. The outer corona-lobes are oblong, indented at the apex; the inner corona-lobes have two clavate horns, similar in disposition to those of *Stapelia neliana*.

FIG. 606

Stapelia herrei Nel x 1.

Photo by H. Herre, Kakteenkunde, 1933

80. *Stapelia neliana*, nom. nov.*Stapelia tigrina* Nel, Kakteenkunde, 133. 1933. Nec Berger, 1910.

(Description by Prof. G. C. Nel, I.c., translated from the German):

Plant: tufted; *stems* 10 to 12 cm. high, 1½ cm. thick at the base, somewhat tapering and 1 cm. thick above, grey-green passing into purple-red at the apex, 6-angled, glabrous; angles somewhat rounded, with small erect teeth about 14 mm. apart; grooves between the angles flat near the base, becoming more deeply incised near the apex;

Flowers: in clusters of 2 to 3, from the lower as well as from the upper part of the stems;

*Pedice*l: 4½ cm. long;

Sepals: 7 mm. long, oblong, lanceolate, acute;

Corolla: broadly campanulate, 6 cm. in diameter; *lobes* 2 cm. long, 10 to 12 mm. broad; outside greenish-yellow, glabrous; inside rugose, the ridges greenish-yellow, the irregular areas between the ridges brownish-purple, the tube with larger, more regular spots;

Outer corona: lobes broadly oblong, 3-toothed at the apex, 1 mm. long, dark purple;

Inner corona: lobes formed of 2 clavate horns, which are intergrown at the base; inner horn 4 mm. long; outer horn 2 mm. long; dark purple.

Type locality: Cape Prov.: Little Namaqualand: Richtersveld: Helskloof.

Distribution: Not further known.

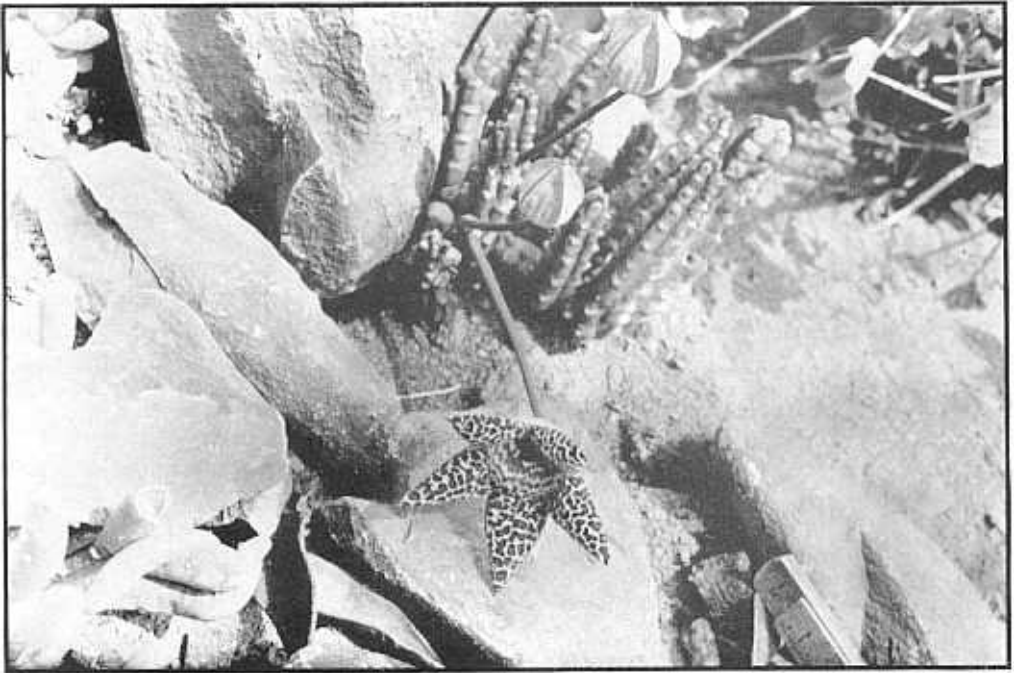


FIG. 607

Stapelia neliana, nom. nov. x 0.5

Photo by H. Herre, Kakteenkunde, 1933.

This very interesting species was discovered in Little Namaqualand by H. Herre in 1930, growing under bushes at about 2100 feet elevation. The former name, *Stapelia tigrina*, referred to the "tiger-skin" appearance of the flowers,

whose corollas are marked by greenish-yellow wrinkles, the irregular sunken areas brownish-purple. This name, however, is invalidated because it was previously assigned by A. Berger to one of the Dammann hybrids of *S. variegata*. We have therefore rechristened the plant in honor of Prof. G. C. Nel, Director of the Botanical Garden of the University of Stellenbosch, who first described it. The shape of the flowers is broadly campanulate, opening very wide when fully mature, the corolla-lobes cleft somewhat more than half-way down, the very shallow central tube whitish and prominently rugose. The corona is deep purple, the outer corona-lobes oblong, 3-toothed at the apex, the inner corona-lobes bifid with two clavate horns. Prof. Nel compares the species to *S. herrei*, from which it is differentiated by the much longer pedicels, the larger and darker flowers, with the corolla more widely open and its inner face not so ex-

tremely rugose. The plant can also be identified, even when not in flower, by the 6-angled stems, unique among *Stapelias*. The flowers are odorless.

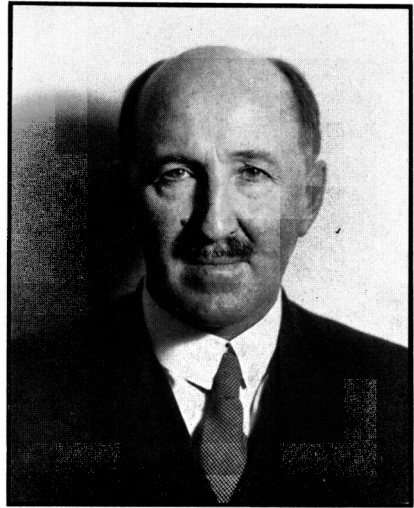


FIG. 608
Prof. G. C. Nel

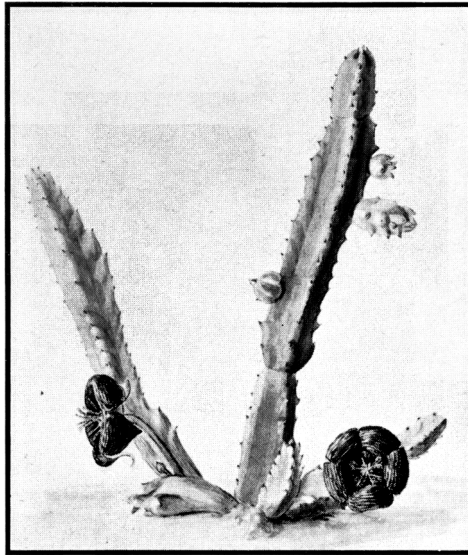


FIG. 609

Stapelia engleriana Schlechter x 0.5

from the original water color drawing by Miss
Mythna Letty for the Flowering Plants of South
Africa, 1932.

81. *Stapelia engleriana* Schlechter, Engl.: Jahrb., xxxviii. 49. 1905.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 979):

Stems: procumbent or decumbent with ascending tips, loosely or sparingly branched, $\frac{1}{3}$ to 1 foot long, 7 to 9 lin. square, with flattish or concave sides, shortly toothed at the angles, minutely velvety-pubescent, greyish-green, flowering near the middle or towards the apex on one of the sides;

Flowers: solitary, sometimes with 1 to 4 other buds at the base of the pedicel, which appear to abort;

Pedicel: $\frac{1}{2}$ to $\frac{3}{4}$ (in fruit up to $1\frac{1}{3}$) in. long, velvety-puberulous;

Sepals: 2 to 3 lin. long, lanceolate or ovate-lanceolate, acute, velvety-puberulous;

Corolla: (from the reflexion of its lobes) somewhat Turk's-cap-like, circular in outline and 10 to 12 lin. in diameter, with a cup-like cavity or tube, softly puberulous on the back, rugose and glabrous on the inner face of the lobes and disk, puberulous with short erect hairs at the bottom of the tube, and with or without a minute ciliation on the lobes, dark purple-brown with or without faint yellowish transverse lines on the base of the lobes and rim of the tube, the bottom of the tube whitish, spotted with purple-brown; *tube* 3 to 4 lin. long and obtusely 5-angled outside and about 6 lin. in diameter at the acutely 5-angled mouth inside, broadly cup-like; *lobes* 5 to 8 lin. long, 5 to 6 lin. broad, deltoid-ovate, acute, closely reflexed upon the back of the tube;

Outer corona: lobes $1\frac{1}{2}$ to 2 lin. long, about $1\frac{1}{2}$ lin. broad, rhomboid with side angles or subquadrate, variably bifid, with or without a minute tooth in the notch or subtruncate and very minutely 3-toothed at the apex, purple-brown, mottled with ochreous or pale yellowish, or the central area and margins of that color dotted with purple-brown;

Inner corona: lobes 2-horned, yellowish, dotted with purple-brown; outer horn erectly spreading, 2 to $2\frac{1}{2}$ lin. long, laterally compressed, linear, slightly clavate at the obtuse apex; inner horn connivent-erect at the base, then arching back nearly as far as the spread of the outer horn, $2\frac{3}{4}$ to 4 lin. long, filiform, more or less clavate and obtuse or acute at the apex;

Follicles: $3\frac{1}{2}$ to $4\frac{1}{4}$ in. long, 4 to 5 lin. thick, terete-fusiform, tapering into a short slightly hooked beak, smooth, puberulous, streaked with dark green or dull purple-brown on a pale-colored ground; *seeds* $2\frac{1}{2}$ lin. long, $\frac{3}{4}$ lin. broad, narrowly lanceolate from the thickened margins being closely incurved on one face, smooth, light brown.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov.: Laingsburg Distr.: near Laingsburg; Beaufort West Distr.: Rhenoster Kop; Prince Albert Distr.: near Prince Albert; Fraserburg Road; Ladismith Distr.: Karroo; Aberdeen Distr.

Stapelia engleriana was first collected in 1841 by James Burke and has since been found at several points in the Great Karroo. The story of its dedication to Prof. A. Engler by Dr. Schlechter in 1905 has been told on p. 120. Dr. Phillips has written of the plant: "In general appearance it is not as attractive as some other species of the genus. The vegetative habit very much resembles some species of *Euphorbia*. The joints on the stems are, we think, due to injuries. If the stem is broken, a new growth starts from the broken surface." (Flow. Pl. So. Afr., 1932). The flowers are interesting because of the way the dark red corolla-lobes roll back completely against the back of the broadly cup-shaped tube, so that the flowers appear quite round, about an inch in diameter. Dr. Brown compared them to a Turk's cap, as he did the flowers of *S. erectiflora*. The corona stands erect within the central tube. The lobes of the outer corona are dark brown, broad and bifid at the tip; those of the inner corona are two-horned, both

horns usually clavate, yellow speckled with red.

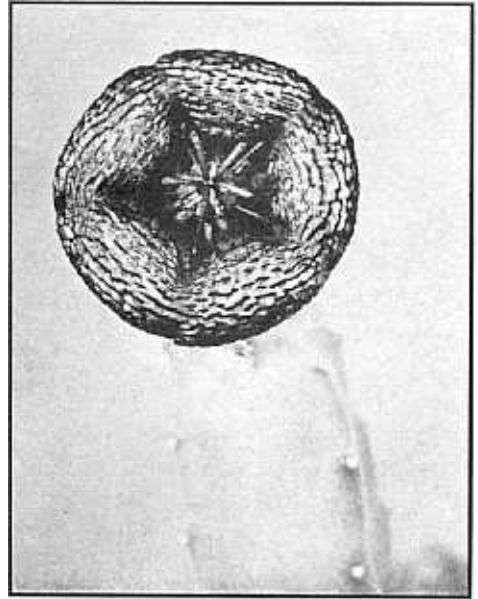


FIG. 610

Stapelia engleriana Schlechter x 1.3

82. *Stapelia clavicorona* Verdoorn, Flow. Pl. So. Afr., t. 407. 1931.

(Description by Miss I. C. Verdoorn, l.c.):

Plant: up to 30 cm. high; *stems* erect, 4-angled, stout, deeply concave between the angles, with the angles compressed, velvety-pubescent;*Flowers*: about midway up the stem;*Pedicel*: 7 mm. long, pubescent;*Sepals*: 6 mm. long, lanceolate, pubescent;*Corolla*: about 6 cm. in diameter, velvety-pubescent outside, glabrous within except for several deflexed white hairs in the depression in the center; *disk* and lobes transversely marked with purple-brown stripes; *lobes* 1.7 cm. long, revolute at the apex, ciliate with long obscurely clavate fibrillate hairs and much shorter simple cilia;*Outer corona*: lobes dark purple, about 4 mm. long, canaliculate at the base, spreading at the apex;*Inner corona*: lobes dark purple, 2-horned, with the inner horns 3 mm. long, curved, clavate, clustered together over the staminal column, and with the outer horns clavate, thicker than the inner, straight and standing at an angle of 45° to the staminal column.*Type locality*: Transvaal: Zoutpansberg Distr.: Wylie's Poort, central gorge near the cement causeway, hard of access.*Distribution*: Not further known.

Discovered by J. J. van Nouhuys at the southerly base of the Zoutpansberg, just north of the tropic in the Transvaal. It was growing on loose talus and seemed to be very local in distribution. Like some of the other tropical *Stapelias* it does not fall readily into any formal classification of the genus. It resembles some *Stapeltonias* in its robust velvety stems, to 1 foot high, deeply concave between the compressed angles. The flowers are light yellow with transverse purple-brown lines and a purplish tinge at the centre, but they become greenish with age and the older flowers are described as "quite green when seen by transmitted light." The corolla surface is velvety outside, and glabrous within, save for a few white hairs in the central cup-like depression which contains the dark purple corona. The corolla-lobes are ciliate with short simple hairs and some longer sub-clavate vibratile hairs. The plant was given its name, the "*Stapelia* with a clavate corona," because of the unique character of its inner corona-lobes. These are formed each of two horns, both clavate at the tips, the inner horns clustered together over the anthers, the outer horns thicker and quite

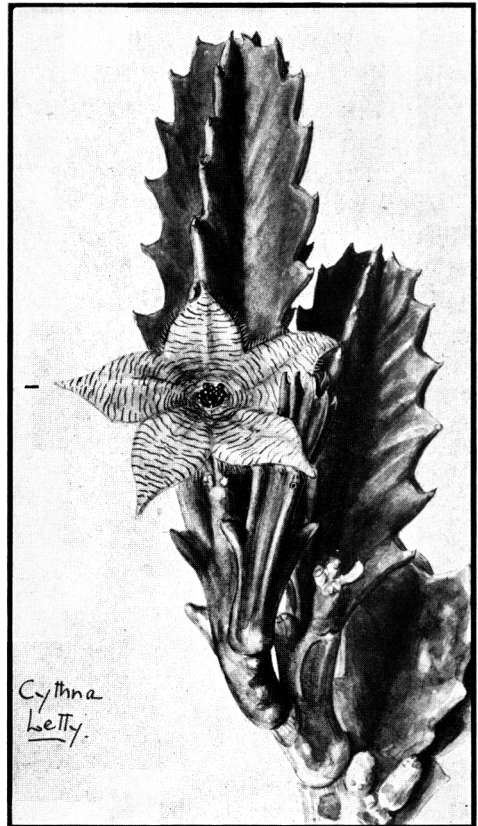


FIG. 611

Stapelia clavicorona Verdoorn x 0.6

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1931.

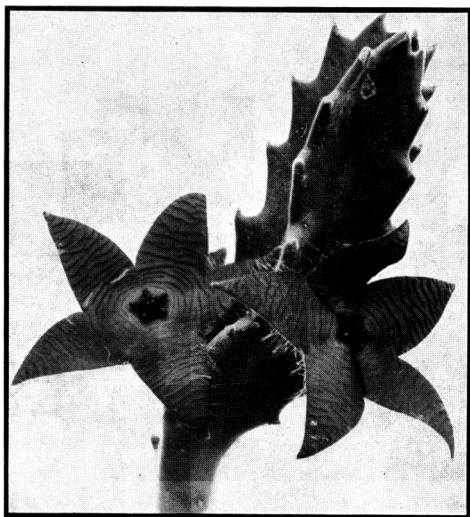


FIG. 612

Stapelia clavicorona Verdoorn x 0.6

Photo by S. Tapscott.

straight, diverging from the staminal column at an angle of 45° . The outer coronalobes are channeled at the base and spreading at the tip.

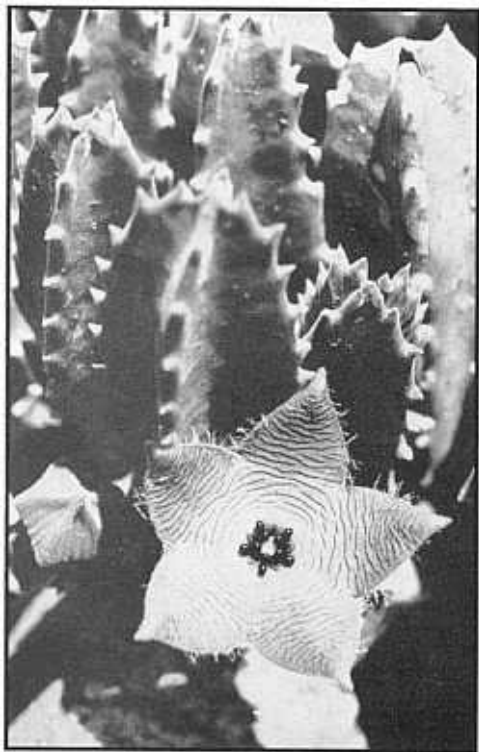


FIG. 613

Stapelia clavicorona Verdoorn x 0.6

Photo: G. W. Reynolds of a plant from Wylie's Poort, Zoutpansberg district.

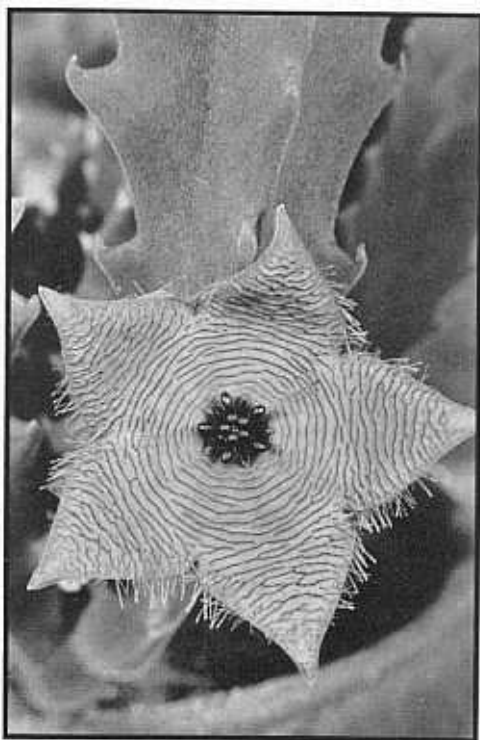


FIG. 613-A

Stapelia clavicorona Verdoorn x 1.3

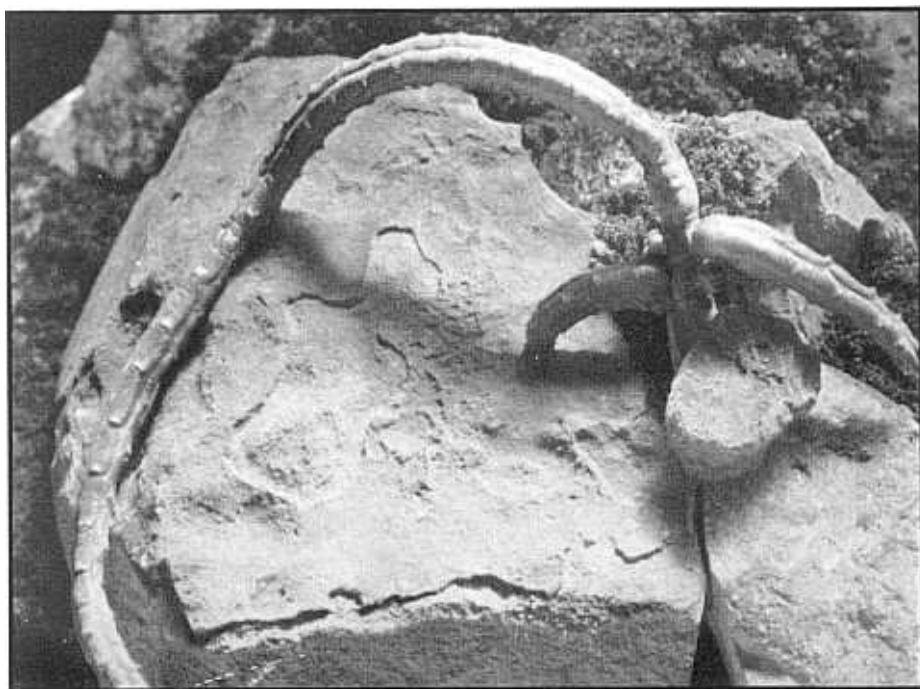


FIG. 614

Stapelia longii Luckhoff

Photo by Carl Luckhoff of a plant in its natural surroundings.

83. *Stapelia longii* Luckhoff, So. Afr. Gard., 95. 1935.

(Description by C. Luckhoff, l.c.):

Stems: up to 23 cm. long, 6 mm. thick, very obtusely 4-angled, provided in the new growth with short recurved teeth, glabrous, dull green; branching occurs 2 to 8 cm. from the base, the young stems at right angles and arching downwards;

Flower: solitary, arising about the middle of the young stems;

Pedice: 2.5 cm. long, glabrous;

Sepals: 3 mm. long, glabrous;

Corolla: 2.4 cm. in diameter, without a distinct tube, glabrous, outer surface dull green, inner face light brown, with a few rugosities and yellow lines on the united portion around the corona; lobes 7.5 mm. long, reflexed from the base, with the edges parallel until the middle, thence acute, ciliate along the basal third with stout clavate purple hairs 1.5 mm. long;

Outer corona: lobes spreading, composed of two flattened nearly parallel segments united at their base, each segment 2.5 mm. long, terminating in a knob covered with small rounded fleshy projections, shiny black;

Inner corona: lobes 2-horned, the outer horn spreading, the inner horn erect, each 1.25 mm. long, and terminating in a knob covered with small rounded fleshy projections, shiny black.

Type locality: Cape Prov.: Hopewell Distr.: western section of the Zuurberg.

Distribution: Not further known.

"Long's *Stapelia*" is named for its discoverer, F. R. Long, Superintendent of Parks in the city of Port Elizabeth, who has

been much interested in the development of the fine collection of succulents in Prince Alfred's Park. Mr. Long collected the

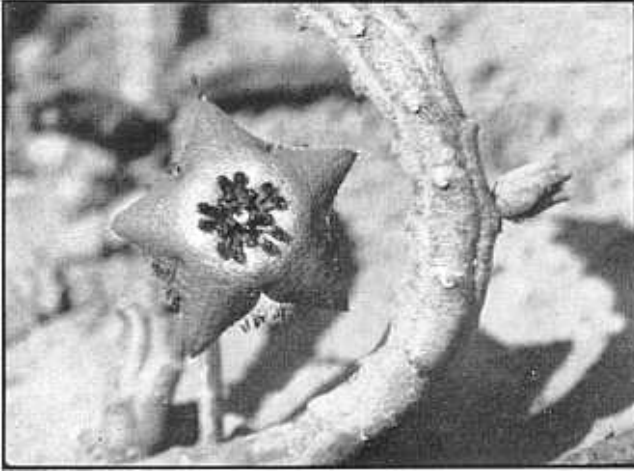


FIG. 615

Stapelia longii Luckhoff x 1.5

From the collection of David Pringle. Photo from
South African Gardening and Country Life, 1935.

species in 1934 in the western section of the Zuurberg range, about 70 miles north-west of Port Elizabeth, on rocky krantzies in the Paardepoort (or Horse's Pass, the name referring to the good grazing in the neighborhood). Mr. Long has nicknamed the plant the "Rat's tail *Stapelia*," because the stem growth is thin, hanging, and flabby, not unlike that of *Ceropegia stapeliaeformis*. *Stapelia longii* belongs to the *Caruncularia* section, because of the gnarled knobs which terminate the horns of the inner corona-lobes. Aside from the individuality of its stems and its remote habitat as compared with the habitats of the other three members of the section, it is distinguished by the smooth inner corolla surface, and most of all by the character of the outer corona. The outer corona-lobes are deeply cleft, and the segments terminate also in enlarged knobs covered with fleshy projections. The combined effect of the entire corona, with its 20 horns or segments

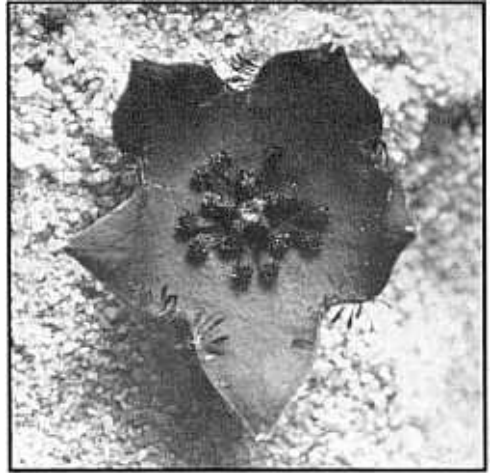


FIG. 616

Stapelia longii Luckhoff x 2.5

Photo by Carl Luckhoff.

all knobbed and gnarled, is extraordinary and makes the species altogether the quintessence of the *Caruncularia* strain.

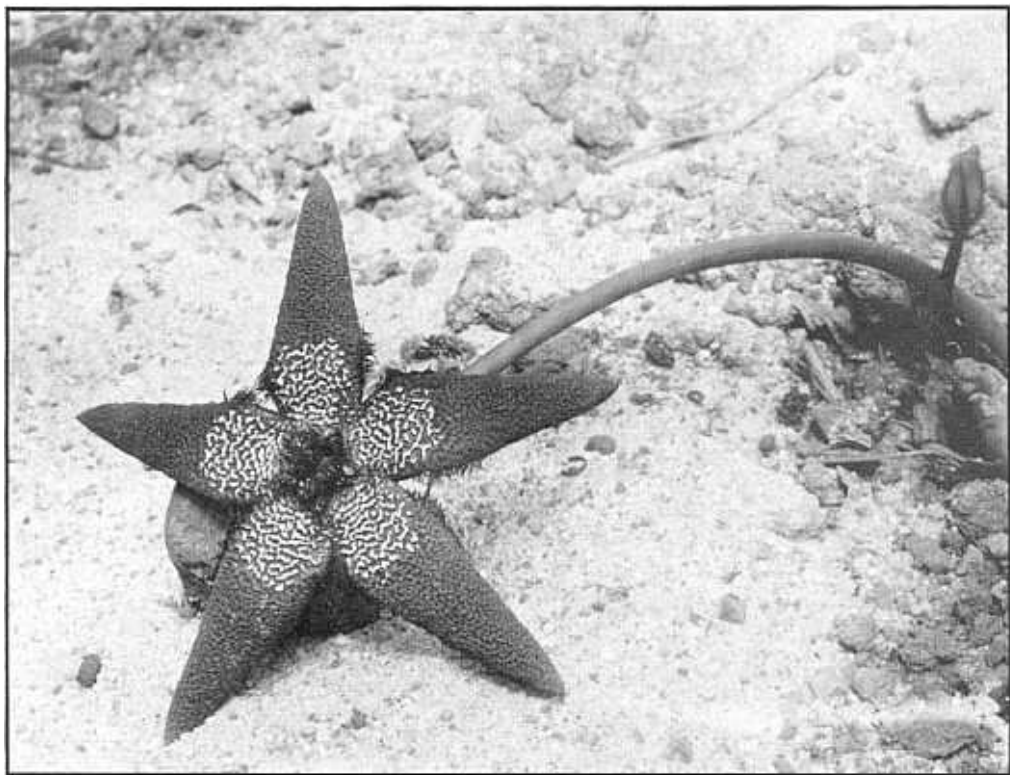


FIG. 617

Stapelia longipes var. *namaquensis* Luckhoff x 1.5
Photo by Carl Luckhoff.

84. *Stapelia longipes* Luckhoff, So. Afr. Gard., xxiv. 245. 1934.

(Description by Carl Luckhoff, l.c.):

Stems: indistinguishable from those of *Stapelia pedunculata*, glabrous, forming compact or laxly branching clumps up to 40 cm. across;*Pedice*l: 12 to 18 cm. long, decumbent;*Sepals*: 5.5 mm. long, lanceolate;*Corolla*: 6 cm. in diameter, rugose over the entire inner face, the rugosities narrow and contorted; lobes 24 mm. long, 8 mm. wide at the base, widening to 11 mm. at the middle and thence gradually tapering to the apex, with the edges recurved, apical $\frac{2}{3}$ intense purple-black, lower $\frac{1}{3}$ and united part of corolla white, spotted and lined between the rugosities, densely ciliate on the lower half with magenta hairs 2 to 3 mm. long, half of them directed inwards;*Outer corona*: lobes suberect, 1.5 mm. long, truncate, concave down the inner face, yellow-brown;*Inner corona*: lobes 2-horned, shiny black, horns nearly similar, the inner erect at the base, then recurved-spreading, with a spatula-like termination which is concave below, tuberculate, 4 to 5 mm. long; outer horn spreading, ending in an irregular knob covered with angular projections.

Type locality: South West Africa: Witputs.

Distribution: Not further known.



FIG. 618

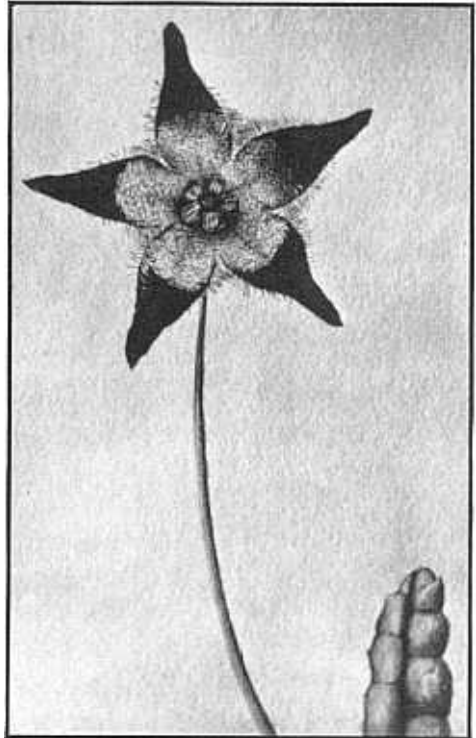
Stapelia longipes Luckhoff x 0.5

FIG. 619

Stapelia longipes Luckhoff x 0.75

Photo by Carl Luckhoff.

The "long-stemmed *Stapelia*" was discovered by Ernst Rusch, Jr., at Witputs, South West Africa, about 1932. The name

Witputs means White-well or Well-of-pure-water, a well which has been described as being a broad valley. This

Stapelia is closely related to *S. pedunculata* and *S. ruschiana*, but the inner horns of the inner corona are spatulate in shape, concave on the under side, and they have the angular fleshy projections characteristic of *S. pedunculata* reduced to a few ridges and small papillae. The pedicels are apparently always decumbent and Mr. Rusch says that they are on the average longer than those of *S. pedunculata* and this fact is referred to in the name of the species. The flowers also are larger and their color is deeper.

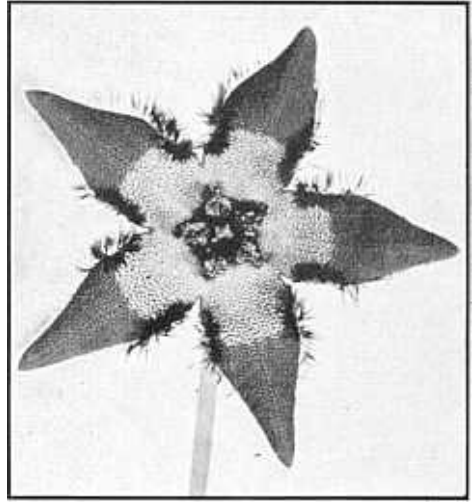


FIG. 620

Stapelia longipes Luckhoff x 1.

Var. a. *Stapelia longipes* var. *namaquensis* Luckhoff, var. nov.

(Description by C. Luckhoff) :

Corolla: 7 cm. in diameter, disk and base of lobes less heavily spotted and lined than in the type;

Outer corona: lobes more deeply notched at the apex than in the type;

Inner corona: lobes identical with those of *Stapelia pedunculata*, only somewhat larger, both horns terminating in large knobs covered with angular projections;

Otherwise as in the type.

This new "Namaqualand variety" was discovered near Swartwater, Richtersveld, Little Namaqualand, by P. van Heerden in 1934, and it flowered in January, 1935, in the garden of Dr. J. Luckhoff at Capetown. The type specimen is No. 217 in the Luckhoff Herbarium. It is the largest and handsomest embodiment of the *Caruncularias* and presents a definite connecting link between *S. pedunculata* and *S. longipes*. Its habitat, too, is intermediate between these two species, that of *S. pedunculata* lying to

the south from O'okiep to the Kamiesberg range, and that of *S. longipes* to the north in South West Africa across the Orange River. Mr. Luckhoff has classified the plant as a variety of *S. longipes*, which it more closely resembles than it does *S. pedunculata*, although the inner corona-lobes are exactly of the *S. pedunculata* model, both horns ending in large knobs covered with sharp angular projections instead of the inner horn being spatulate in shape and concave just below the apex. See Fig. 625.

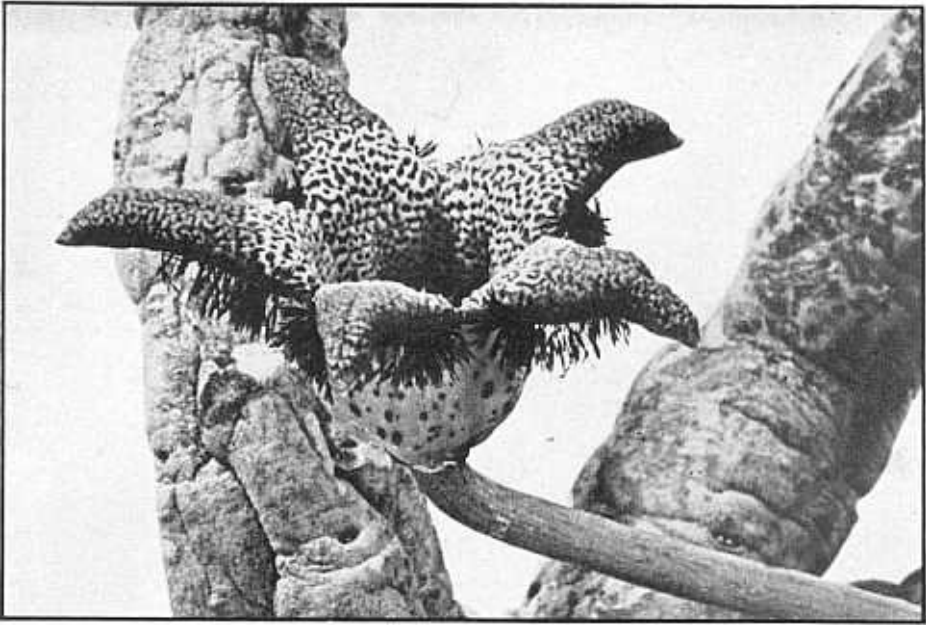


FIG. 621

Stapelia ruschiana Dinter x 2.5

Photo by A. W. Cocks.

85. *Stapelia ruschiana* Dinter, Fedde: Repertorium, xix. 177. 1923.

(Description based on that by Prof. K. Dinter, l.c., translated from the German):

Stems: 10 to 20 cm. long, obtusely 4-angled, green to reddish-brown, resembling the stems of *Caralluma aperta*, forming tufts to 20 cm. in diameter;*Flowers*: 1 to 2 from the base of the stems, as well as from their middle part or the apex;*Pedice*l: 5 cm. long, horizontal;*Sepals*: 3 mm. long, 2 mm. broad, ovate, acute;*Corolla*: broadly campanulate, 36 mm. in diameter; united portion 13 mm. long, 11 mm. broad; lobes 14 mm. long, 6 to 7 mm. broad at the base, with the margins revolute; united portion green outside with red dots, lobes greenish-red without dots; inside the basal 5 mm. of the united portion are dark red, densely covered with blackish-red clavate papillae; then follows a rugose zone extending to above the base of the lobes, 7 mm. wide, without papillae, white in color (or sulphur-yellow in the dried state) with dark red dots; and beyond that the lobes are red-brown and rugose; at the sinuses of the lobes are some very crowded dark red-brown clavate hairs;*Outer corona*: flat bowl-shaped with 5 horizontally spreading broad tooth-like lobes;*Inner corona*: lobes alternating with the teeth of the outer corona, 2-horned, both horns freely erect, shiny as if lacquered, gnarled as if pock-marked, recurved-spreading at the apex, the inner of the 2 horns incumbent at its base over the anthers; height of the corona 5 mm.*Type locality*: South West Africa: Great Namaqualand: Klinghardt Mountains.*Distribution*: Not further known.

"Rusch's *Stapelia*" was discovered by Prof. Dinter, Sept. 15, 1922, growing in the sand of "stranded" dunes among rocky places on the slopes of the Klinghardt Mountains in Great Namaqualand. He named it for his friend, Ernst Rusch of

Farm Lichtenstein, near Windhoek, widely known himself as a plant collector. At first the plant was thought to be a *Caralluma*, from the similarity which the stems bear to those of *C. aperta*, a species from Little Namaqualand; but when the flower opened it revealed close kinship, through the form of the inner corona, to *Stapelia pedunculata*, also from Little Namaqualand, which it likewise resembles in its stems. The inner corona-lobes are two-horned, the horns erect, clavate and gnarled at the apex, and belong typically within the definition of Haworth's genus *Caruncularia*. These lobes are adnate at the base to the outer corona, and the outer of the two horns alternate with the small teeth which mark the edge of the flat bowl-shaped outer corona, this intergrowth suggesting the genus *Caralluma*. The flowers have a bell-shaped centre, dark red, thickly covered with papillae; then comes a whitish zone, with dark red dots; while the upper part of the lobes is dark red-brown. The base

of the lobes is fringed with vibratile clavate hairs.

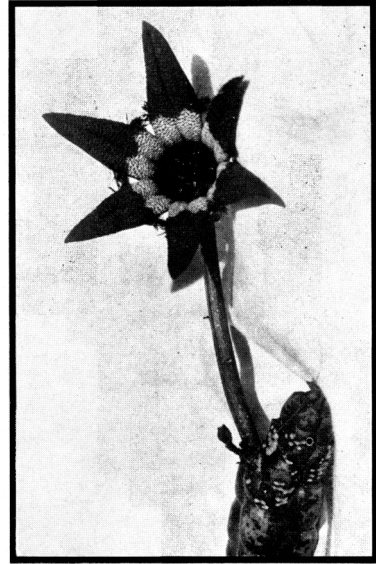
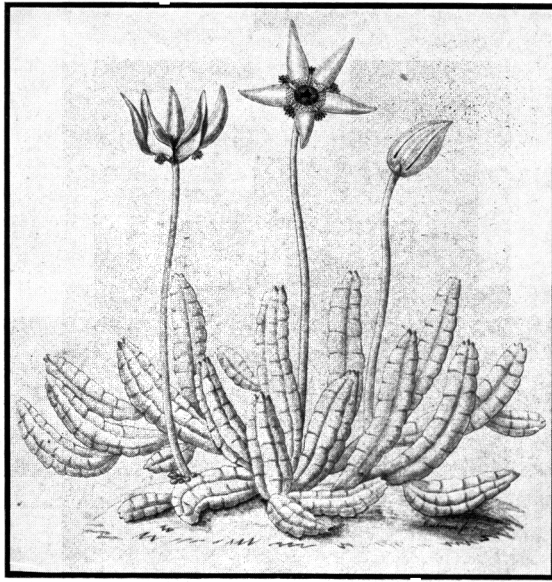


FIG. 622

Stapelia ruschiana Dinter x 0.8
Photo by Prof. Dinter of a six-lobed flower.



Stapelia pedunculata Masson
From *Stapeliae Novae*

86. *Stapelia pedunculata* Masson, Stap. Nov., 17. 1796.

Caruncularia pedunculata Haworth, Syn. Pl. Succ., 333. 1812.

Caruncularia simsii Sweet, Hort. Brit., 2 Ed., 358. 1830.

Caruncularia massoni Sweet, Hort. Brit., 2 Ed., 359. 1830.

Caruncularia jacquini Sweet, Hort. Brit., 2 Ed., 359. 1830.

Caruncularia penduliflora Sweet, Hort. Brit., 2 Ed., 359. 1830.

Stapelia laevis Decaisne, de Candolle: Prodrum, viii. 658. 1844.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 971):

Stems: erect or decumbent at the base, 2 to 5 in. (up to 8 in., *Barkly*) long, 4 to 8 lin. thick, somewhat obscurely 4-angled and very slightly or indistinctly toothed, smooth, glabrous, greyish-green, mottled or tinted with faint purplish-brown where exposed to the sun, slightly glaucous when young;

Leaves: 1 to 2 (and usually 2 to 5 buds which abort) together, near the base of the young stems, successively developed;

Pedicel: erect, 3 to 6 in. long, much overtopping the stems, glabrous;

Sepals: $2\frac{1}{2}$ lin. long, lanceolate-subulate, glabrous;

Corolla: in bud ovoid, with 5 compressed angles; when expanded $1\frac{1}{2}$ to $2\frac{1}{4}$ in. in diameter, very deeply lobed, smooth on the back, faintly punctate-rugulose on the inner face, light olive-brown with a slight golden tinge, or olive-green or light greenish-yellow, the basal part of the lobes and the small cup pale greyish-white, dotted with reddish-brown, beautifully ciliate with vibratile clavate dark purple hairs for about $\frac{1}{4}$ inch along the margin near the base of the lobes, otherwise glabrous; *tube* scarcely any, the united part very shortly and broadly funnel-shaped or flattish; *lobes* horizontally spreading, with the margins rolled back so as to touch or overlap, forming a pointed cylinder, $\frac{7}{8}$ to $1\frac{1}{4}$ in. long, 6 to 7 lin. broad when flattened out, lanceolate or elliptic-lanceolate, acute;

Corona: lobes spreading, comparatively very small, 1 to $1\frac{1}{4}$ lin. long, linear, usually truncate or emarginate or minutely 3-toothed at the apex, more rarely acute, channeled down the face, purple-black;

Inner corona: lobes 2-horned, purple-black, shining; horns very similar, each terminating in a large knob covered with sharp angular projections, the inner erect or subconnivent at the base, then recurved-spreading, about 2 lin. long, the outer rather shorter than and recurved-spreading under the inner horns.

Type locality: Cape Prov.: Little Namaqualand: Kamiesberg Range.

Distribution: Also from near O'okiep; and in the Richtersveld.

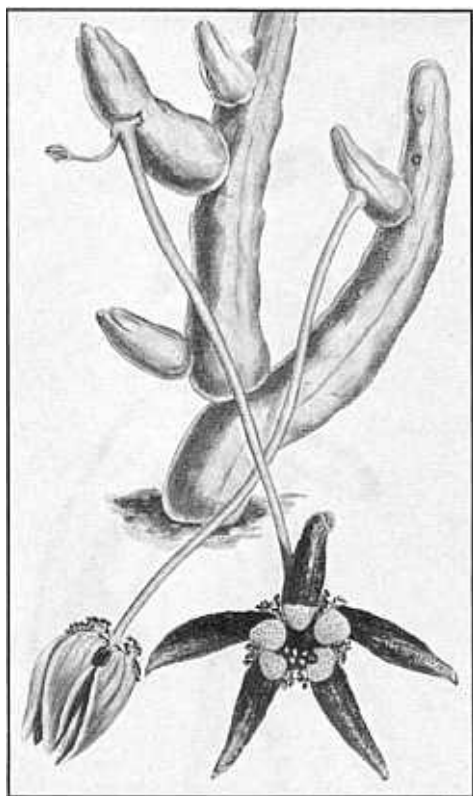


FIG. 624

Stapelia pedunculata Masson x 0.85

From a drawing by Sydenham Edwards, in Curtis's Botanical Magazine, 1804.

This remarkable species was obtained by Francis Masson from Little Namaqualand about 1792. The specific name derives from the very long pedicels (not peduncles, however, as the word is now understood), which quite overtop the indistinctly toothed stems. The 2-inch flowers have a small central cup, from which the deeply cleft lobes spread horizontally, their margins curiously rolled back. The color scheme is striking. The upper part of the corolla-lobes is olive-brown or olive-green, the base greyish-white, dotted red-brown, fringed with a narrow band of vibratile clavate hairs. The inner corona-lobes consist of two horns, each ending in a large knob covered with sharp projections. Mr. Pillans (Appendix C) says the natives call the plant "Sore Head." The smell of the flowers was compared by Haworth to that of stale eggs, while Dr. Brown called it "very nauseous, resembling stale dried salt fish, but only present when the corolla is fully expanded." And he added, "I have had several plants in cultivation, but no two had flowers quite alike. The flowers remain open for about three days. From observations I made

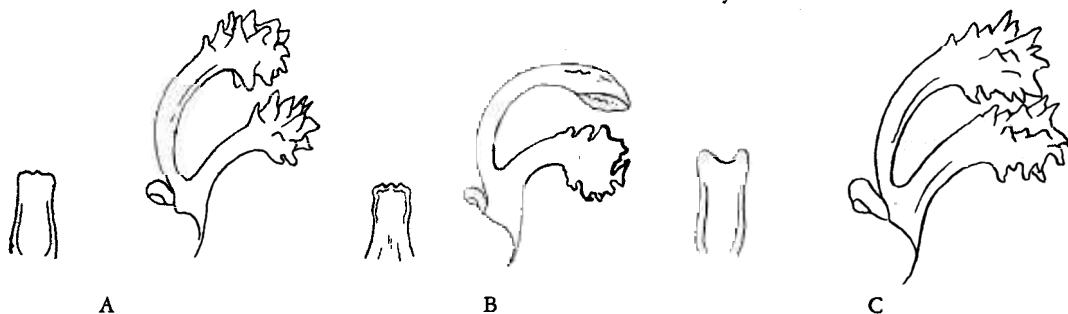


FIG. 625. Outer and inner corona-lobes of (a) *Stapelia pedunculata*; (b) *Stapelia longipes*; and (c) *Stapelia longipes* var. *namaquensis*

Drawing by Carl Luckhoff.

upon the growth of the very long pedicels I find that the lengthening is least at the early and later stages of development, twelve hours, and greatest at the middle stage when it varies from 3 to 7 lines in twelve hours. It varies also from day to day with the temperature."

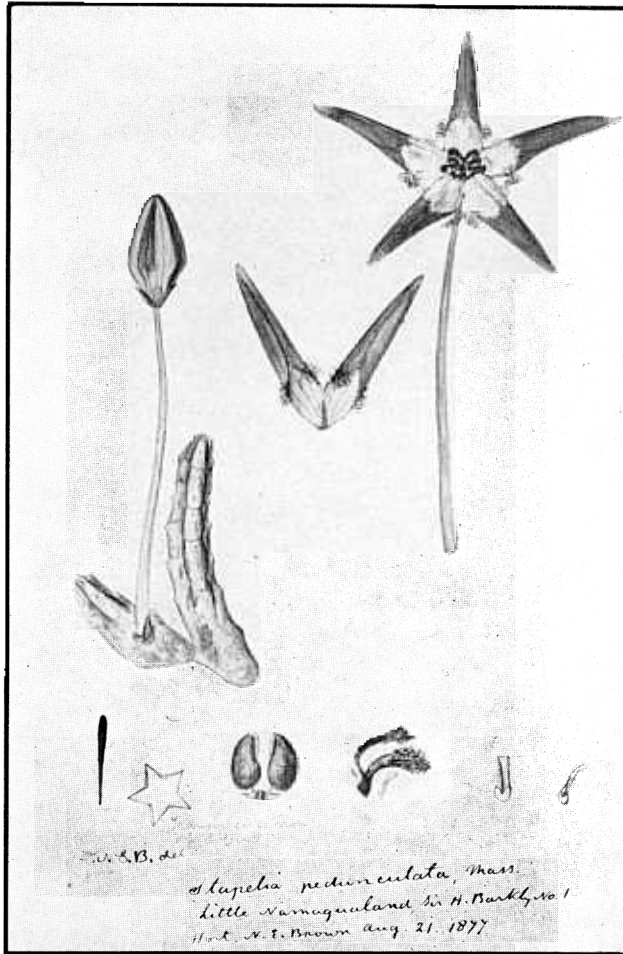


FIG. 626

Stapelia pedunculata Masson x 0.75

Drawing by N. E. Brown, 1877. Reproduced by permission
of the Bentham Trustees.

87. *Stapelia revoluta* Masson, Stap. Nov., 12. 1796.*Stapelia glauca* J. Donn, Hort. Cantab., 3 Ed., 42. 1804.*Tromotriche revoluta* Haworth, Syn. Pl. Succ., 36. 1812.*Tromotriche glauca* Haworth, Syn. Pl. Succ., 37. 1812.*Stapelia protensa* Hornemann, Hort. Hafn., Suppl., 30. 1819.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 980) :

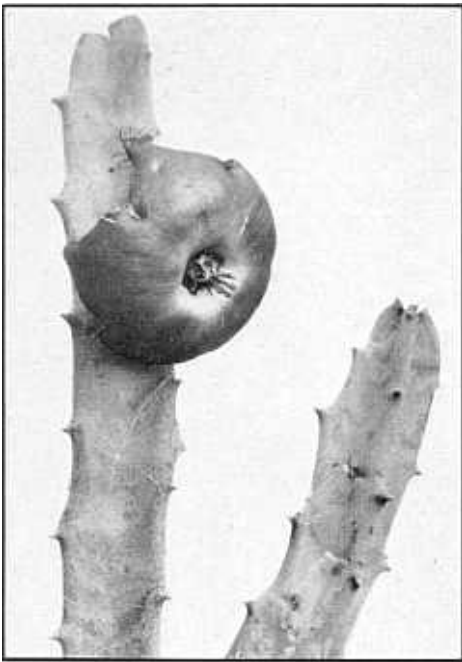
Stems: $\frac{1}{2}$ to $1\frac{1}{4}$ ft. high, sometimes longer under cultivation, sparingly branched, acutely 4-angled, with slightly concave sides and acute spreading teeth 1 to $1\frac{1}{2}$ lin. long on the angles, glabrous, glaucous-green;*Flowers*: 1 to 3 together, from the sides of the upper part of the stems, successively developed;*Pedice*l: 3 to 5 lin. long, glabrous;*Sepals*: $2\frac{1}{2}$ to 4 lin. long, lanceolate, acuminate, glabrous;*Corolla*: with the lobes very much recurved (sometimes so as to touch the back of the flower) and then $1\frac{1}{4}$ to $1\frac{1}{2}$ in. in diameter, glabrous and smooth on both surfaces, pale purple, dull purple or purple-brown, paler on the disk, with the central depression or a star-shaped central area pale greenish-yellow or cream-colored, ciliate to the tips of the lobes with long vibratile clavate purple hairs; *disk* with a short tube-like depression about $\frac{1}{3}$ in. in diameter, enclosing the corona, not raised into a ring around its mouth; *lobes* 7 to 9 lin. long and as much in breadth, ovate, acute or shortly acuminate;*Outer corona*: lobes $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, 1 to $1\frac{1}{4}$ lin. broad, subrectangular, slightly narrowing at the 3-toothed apex, purple-brown with a yellowish base;*Inner corona*: lobes 2-horned, purple-brown at the base, dull yellowish dusted with dull purple-brown on the upper part; outer horn spreading, $\frac{3}{4}$ to $1\frac{1}{2}$ lin. long, laterally flattened, slenderly

FIG. 627

Stapelia revoluta Masson x

Photo by S. Tapscott.

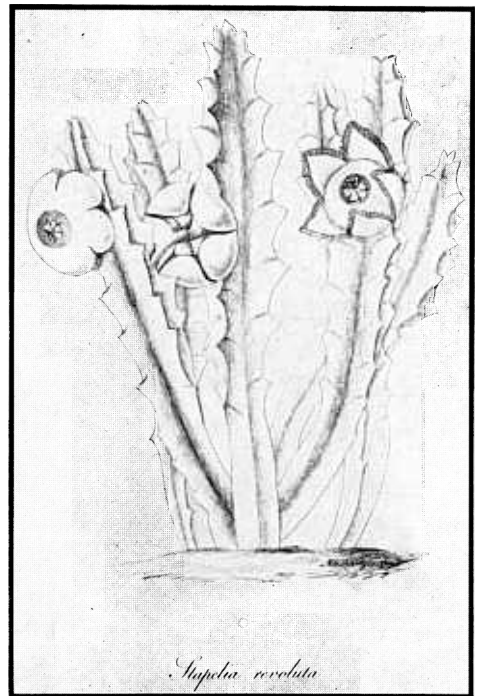


FIG. 628

Stapelia revoluta Masson x 0.4

From Masson: Stapeliae Novae, 1796

linear, obtuse; inner horn connivent-erect at the base, recurving above, 2 to 3 lin. long, filiform, clavate and very minutely tuberculate at the apex;

Follicles: subparallel, 5 to 6 in. long, about 5 lin. thick, fusiform, tapering into an acute slightly hooked beak, smooth, glabrous, glaucous?; *seeds* about $3\frac{1}{2}$ lin. long, 2 lin. broad, flattish, ovate, with a thickened margin, smooth, brown.

Type locality: Cape Prov.: Clanwilliam Distr.: Karroo beyond North Olifants River.

Distribution: Also on the S. W. slopes of the ridge a mile south-east of Clanwilliam; Van Rhynsdorp Distr.: sandy plains near Klaver.

The "revolute *Stapelia*" was discovered by Masson in the westerly Karroid areas (Clanwilliam district). It is rare alike in the wild state and in cultivation and its name is often misapplied to other species. The name refers to the revolute corolla-lobes which are at times so recurved as to



FIG. 629

Stapelia sp.

Photo by S. Tapscott, of a plant of unknown origin. The flower resembles *S. revoluta*, except for the concentric lighter colored bands on the corolla-disk. No exact description of the plant is available, and it is uncertain whether it should be regarded as a variety of *S. revoluta* or as a separate species. The stem form is unusual, two of the stems seemingly having more than four angles, while on a third the angles appear to be spiral.

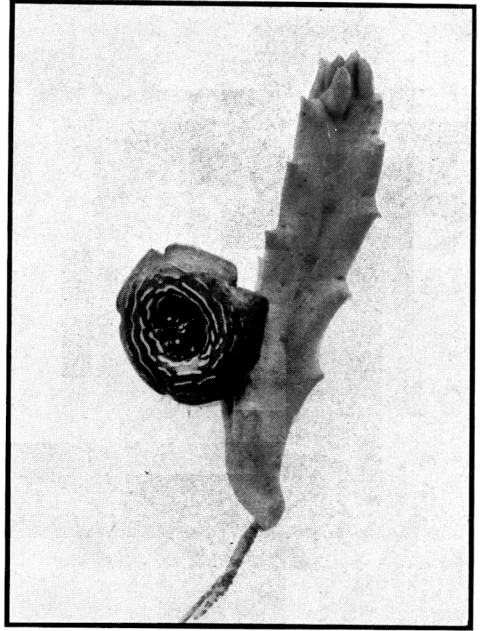


FIG. 630

Stapelia sp.

Photo by S. Tapscott. See note to Fig. 629.

touch the back of the corolla. The flowers are glabrous, very smooth inside and out, the color of the inner surface purplish on the lobes, much paler on the disk about the mouth of the corolla-tube. The thickened *Tromotriche* cushion overlaps the tube horizontally, and does not show in any manner as a raised annulus. The flowers are variable, at least in cultivation, and three varieties have been described. We have seen no record of any of them having been collected in the wild state, and they are perhaps to be regarded only as hybrids.

Var. a. *Stapelia revoluta* var. *tigridia* (Decaisne) N. E. Brown, *Flora Cap.*, iv. i. 981. 1909.

Stapelia revoluta Curtis, *Bot. Mag.*, t. 724. 1804. *Nec* Masson, 1796.

Stapelia tigridia Decaisne, de Candolle: *Prodromus*, viii. 657. 1844.

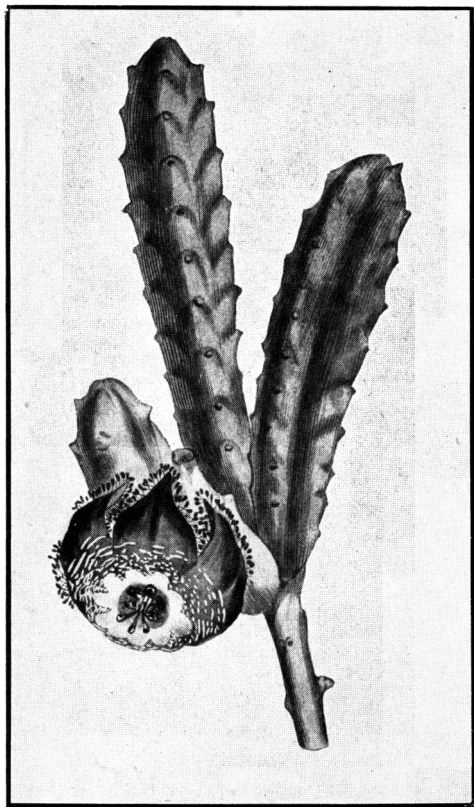
(Description by Dr. Brown, l.c.):

Corolla: with a pale greenish-yellow central star and the disk around it and the very base of lobes marked with yellow dots and short transverse lines;

Otherwise as in the type.

Type locality: Unknown.

Distribution: Unknown.



In the "tiger's skin variety," the paler central area is yellowish and shaped like a 10-pointed star, with some striking yellow spots and lines on the basal portion of the corolla-lobes.

FIG. 631

Stapelia revoluta var. *tigridia*

N. E. Brown x 0.8

From a drawing by Sydenham Edwards,
in Curtis's *Botanical Magazine*, 1804.

Var. b. *Stapelia revoluta* var. *glaucescens* (Rüst) Berger, *Stap. und Klein.*, 228. 1910.

Stapelia glaucescens Rüst, Berger: *Stap. und Klein.*, 228. 1910.

This variety has the corolla-lobes pale red-brown, with a central ring-like area darker, and in this darker zone ten some- what lighter markings, arranged like rays about the tube. It would appear to be a hybrid form.

Var. c. *Stapelia revoluta* var. *fuscata* (Jacquin) N. E. Brown, *Flora Cap.*, iv. i. 981. 1909.

Stapelia fuscata Jacquin, *Stap.*, t. 46. 1806-19.

Stapelia glauca var. *beta* Haworth, *Syn. Pl. Succ.*, 37. 1812.

(Description by Dr. Brown, l.c.):

Corolla: entirely reddish-brown on the inner face, without markings; *lobes* 1 in. long;

Outer corona: lobes ascending with spreading tips, oblong, twice as long as broad, 3-toothed at the apex, purple-brown;

Inner corona: lobes with filiform horns, more slender and longer than in the type, pale reddish-yellow dotted with purple-brown; inner horn about 3 lin. long and twice as long as the outer horn;

Otherwise as in the type.

Type locality: Unknown.

Distribution: Unknown.

• In this "dusky variety," the corolla-lobes are entirely reddish-brown, the inner corona-lobes with filiform horns, more slender than in the type.

In addition to this variety, Haworth published a plant he called *Tromotriche fuscata* Haworth, *Suppl. Pl. Succ.*, 10. 1819. In this plant the inner corona-lobes have the stout horns characteristic of the type of *S. revoluta* and the plant would appear to be merely a color variety of the type.

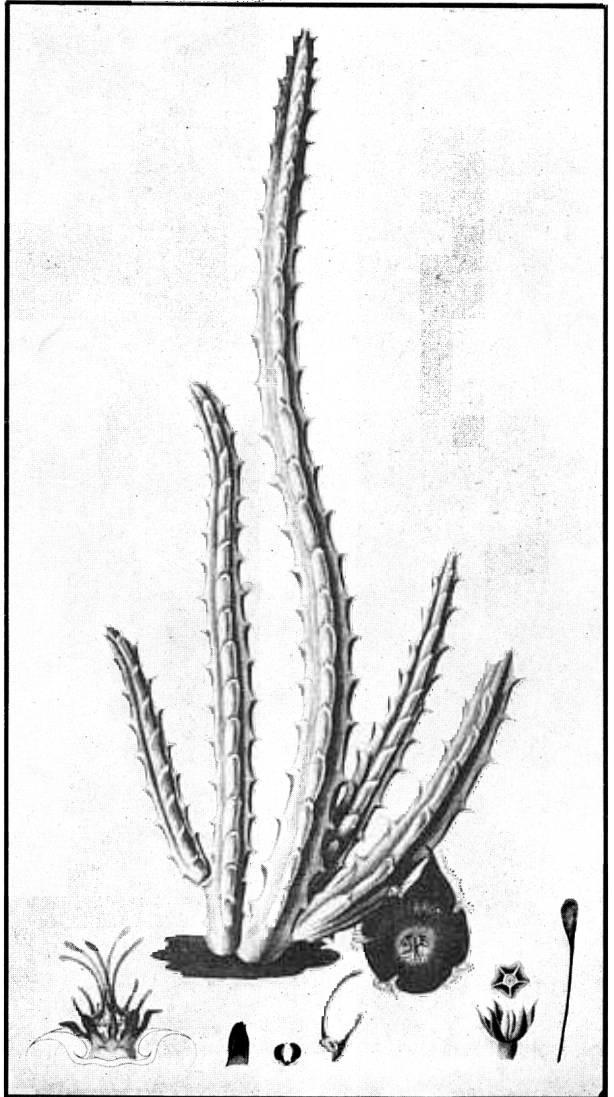


FIG. 632

Stapelia revoluta var. *fuscata*
N. E. Brown x 0.4

From Jacquin: *Stapeliarum Descriptiones*,
1806-19.

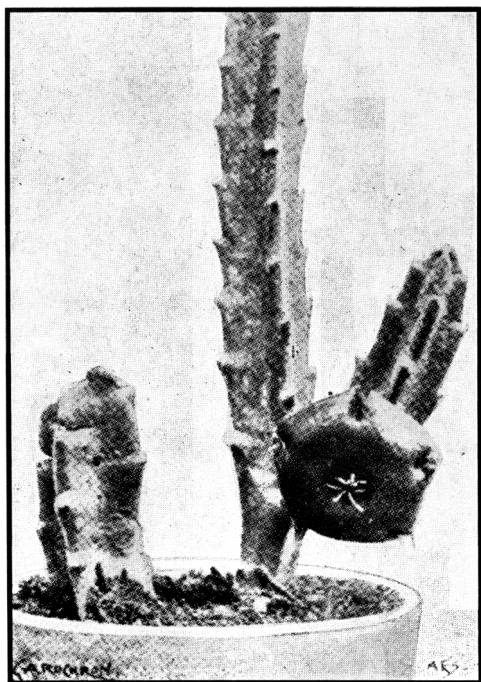


FIG. 633. *Stapelia bella* Berger x 0.3
From Gardeners' Chronicle, 1908.

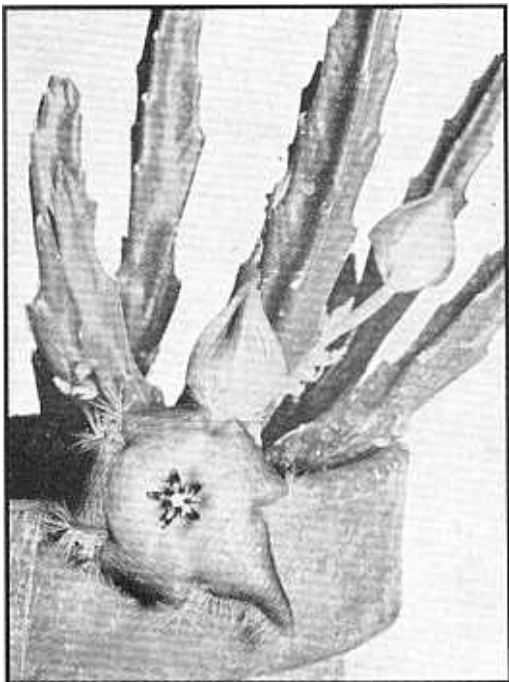


FIG. 634. A hybrid *Stapelia*, conforming closely
to the description of *S. bella* x 1.

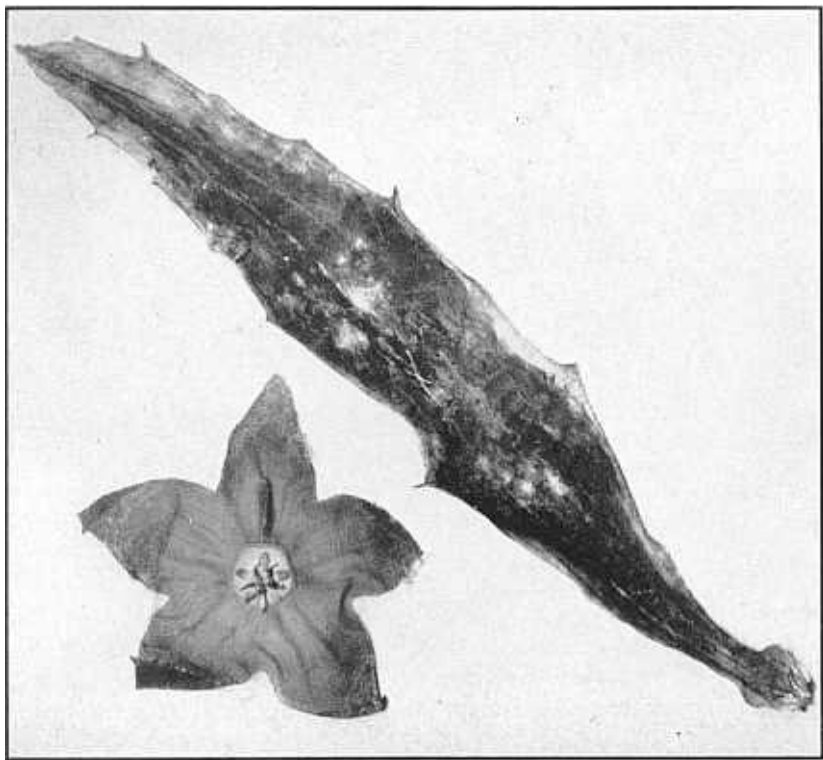


FIG. 635
Stapelia bella
Berger x 1.
Dried stem and flower
of the type plant, in
the Herbarium of the
New York Botanical
Garden.

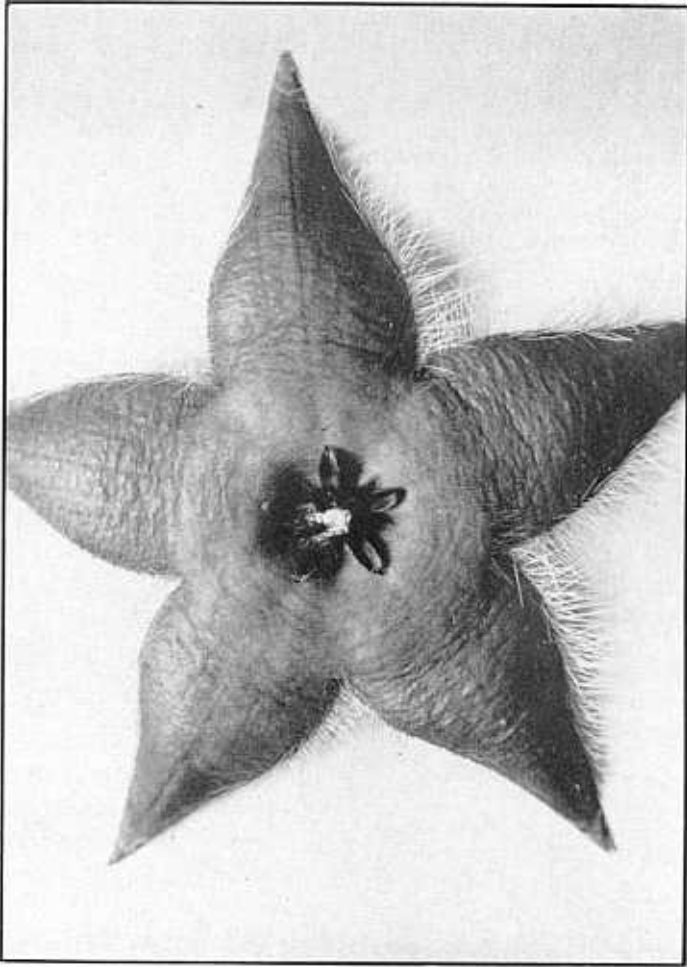


FIG. 636

A hybrid *Stapelia*, conforming closely to the description of *S. bella* x 2.

88. *Stapelia bella* Berger, Gard. Chron., xxxi. 137. 1902.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 979):

Stems: erect, branching at or above the base, 5 to 7 in. high, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, with concave sides and slightly compressed angles, having small spreading acute teeth $\frac{1}{2}$ to $\frac{3}{4}$ lin. long, with a minute tooth (rudimentary stipule) on each side, covered with exceedingly minute pubescence, dull green, not glaucous;

Flowers: 3 to 4 together on a very short peduncle at the base of the young stems;

Pedicel: $\frac{1}{4}$ to $\frac{3}{4}$ in. long, 1 lin. thick;

Sepals: 2 to $2\frac{3}{4}$ lin. long, $\frac{3}{4}$ to $1\frac{1}{4}$ lin. broad at the base, tapering to an acute point;

Corolla: in bud much flattened, with a short apiculus and 5 ridges radiating from it to 5 short hooked teeth beneath the circumference; when expanded and the lobes extended $1\frac{3}{4}$ to 2 in. in diameter, glabrous on both sides, with the inner face deep purplish-red, browner towards the tips of the lobes, paler at the centre and the small tube whitish, without markings, ciliate on the lobes with long flattened tapering purple hairs mingled with a few clavate, vibratile, easily detached; tube represented by a pentagonal depression or cavity about 1 lin. deep and 2 lin. in

diameter, from which the corona is exerted, with some short hairs within; *disk* slightly convex, nearly smooth; *lobes* recurved or revolute, flattish, 7 to 8 lin. long, 6 to 7 lin. broad, ovate, acute, slightly rugose on the inner face;

Outer corona: lobes $1\frac{2}{3}$ lin. long, $\frac{3}{4}$ to 1 lin. broad, oblong, with or without a tooth or angle on each side, thence narrowed to an obtuse or obscurely 3-toothed apex, slightly concave down the face, glabrous, blackish-brown;

Inner corona: lobes dull brownish-purple, with the dorsal wing free to the base, spreading, scarcely 1 lin. long, deltoid, obtuse or acute; inner horn 2 to $2\frac{1}{2}$ lin. long, filiform, connivent with the others at the base, then arching-recurved over the outer horn.

Origin: A hybrid raised in Europe.

The "pretty *Stapelia*" is believed to be a hybrid of *Stapelia revoluta*, and *S. deflexa*

may also be represented in its pedigree. It was observed about 1900 in Sir Thomas Hanbury's famous garden at La Mortola. The plant looks a little more like a *Stapelia* than does *S. revoluta*, because its stems are minutely pubescent and the angles slightly compressed. Dr. Brown's description says that the teeth bear minute denticles at the sides, a feature we have noticed also on some stems of *S. comparabilis*. The flowers are purplish-red within, darker near the tips of the lobes, the corolla fabric very fleshy, thickened on the disk so as to create a small central depression in which the corona is set. The lobes are fringed with tapering (not clavate?) purple-brown or whitish hairs, exceedingly vibratile and easily detached. The inner corona-lobes have a small triangular toothed wing, over which the slender inner horn arches gracefully.

Confusion in identifying flowers of this important hybrid has resulted from the fact that the corolla in the original figure in the *Gardeners' Chronicle* has a rather shiny aspect, as well as from Berger's reference to the edge of the corolla-tube as being of a "shining pale red-brown" (*Stap. und Klein.*, 230). Hence flowers with wholly shining corollas are frequently referred to *S. bella*, but this is in all probability incorrect, and these very shining forms doubtless belong in the relationship of *S. asterias* var. *lucida*. The type flower of *S. bella*, now preserved in the Herbarium of the New York Botanical Garden, is not at all shiny, and the same may be said of a drawing which accompanies the dried type material.

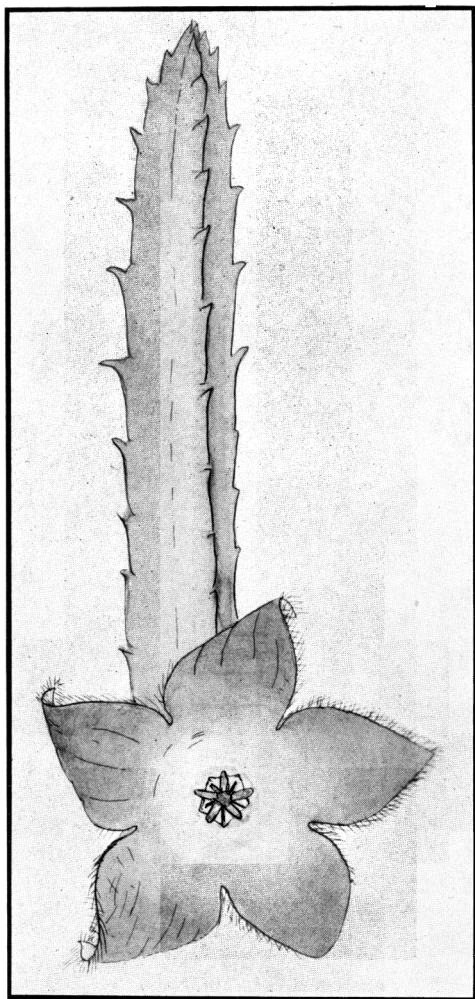


FIG. 637

Stapelia bella Berger x 1.2

from a drawing (by Alwin Berger?) in the Herbarium of the New York Botanical Garden.

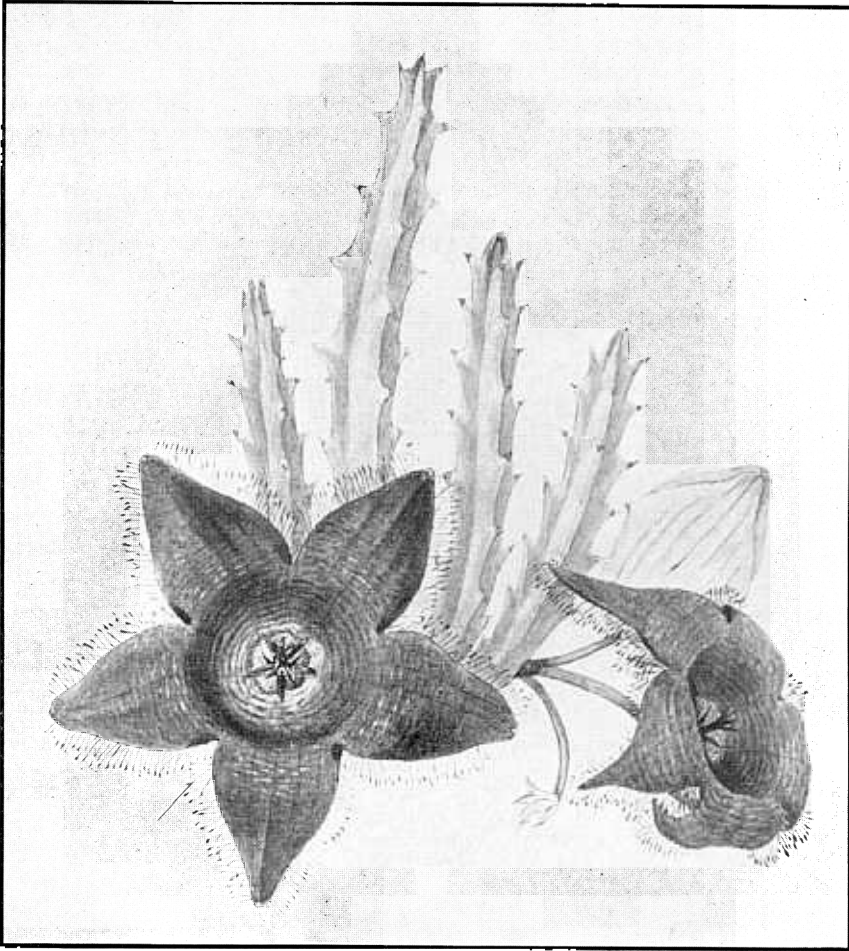


FIG. 638

Stapelia incomparabilis N. E. Brown x 0.75

Drawing by Miss Westcombe. Reproduced by permission of the Director,
Royal Botanic Gardens, Kew.

89. *Stapelia incomparabilis* N. E. Brown, Gard. Chron., xxx. 405. 1901.

(Description by Dr. Brown, Flora Cap., iv. i. 961):

Stems: erect, 3 to 6 in. high, 4 to 6 lin. thick, 4-angled, with stout horizontal teeth 1 to $1\frac{1}{2}$ lin. long, tipped with spreading or slightly ascending subulate rudimentary leaves 1 to $1\frac{1}{4}$ lin. long, which soon wither, glabrous to the eye, but very minutely and scantily puberulous under a strong lens;

Flowers: 3 to 4 together near the base of the stems, successively developed;

*Pedice*l: $\frac{1}{2}$ to 1 in. long, very minutely puberulous under a lens;

Sepals: 3 to 5 lin. long, 1 lin. broad, lanceolate, acuminate, glabrous, ciliate with white hairs;

Corolla: 3 to $3\frac{1}{2}$ in. in diameter, smooth and glabrous on the back, transversely rugose on the inner surface, entirely purple or purple-red (not purple-brown), sometimes with narrow irregular transverse yellowish or whitish lines on the edges of the rugosities, pubescent with short dark purple hairs in the cavity containing the corona, otherwise glabrous, ciliate to the tips of the lobes with long clavate vibratile dark purple (sometimes mingled with white) hairs; united

part broadly cup-shaped, 1 to 1¼ in. in diameter and about ½ in. deep, suddenly contracted at the bottom into a very short subpentagonal cavity containing the corona; lobes very spreading or reflexed, 1 to 1¼ in. long, 9 to 10 lin. broad, ovate, acute or acuminate;

Outer corona: lobes ascending-spreading, 2 lin. long, ¾ lin. broad, linear, subtruncate or rounded with a slightly projecting tooth or emarginate or bifid at the apex, dull purple or purple-red with paler margins;

Inner corona: lobes 2-horned, purple-brown, more or less speckled with a paler color at the tips; outer horn suberect, 1½ lin. long, laterally compressed, subulate, acute; inner horn connivent-erect below, slightly diverging at the tips, 4 lin. long, filiform, slightly clavate and acute at the apex.

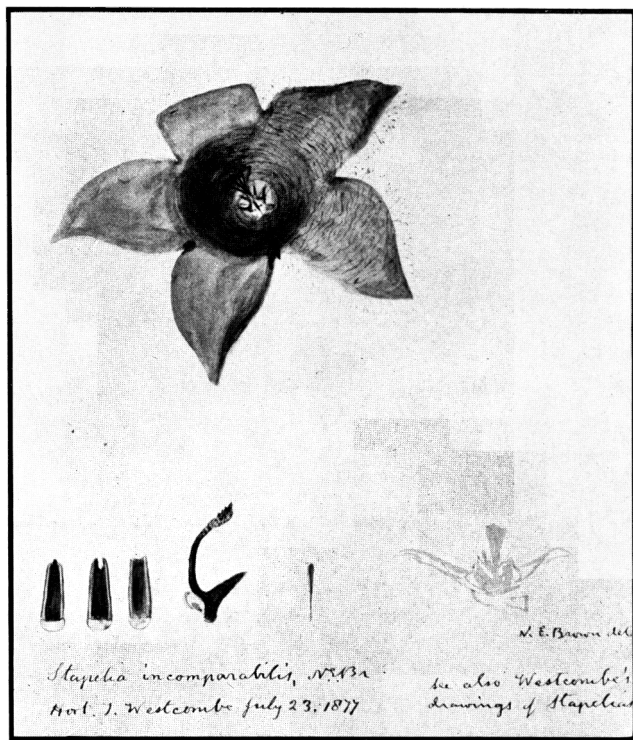
Origin: Unknown, probably a hybrid raised in Europe.

FIG. 639

Stapelia incomparabilis N. E. Brown
x 0.6

Drawing by N. E. Brown of the type specimen, grown in the garden of J. Westcombe, 1877. Reproduced by permission of the Bentham Trustees.

Stapelia incomparabilis, the "Stapelia beyond compare," is another *Tromotriche* of uncertain origin. It was first noticed in his garden in 1875 by Mr. Westcombe, an ardent English cultivator of Stapeliads at that period. Dr. Brown says: "It may be a native of South Africa, but I suspect that it is more probably a hybrid raised in Europe. The color is brighter than and the flower totally different from that of any other species I have seen." The corolla-disk is broadly cup-shaped, the central cavity contracted at the centre, with some short dark-purple hairs within it. The rest of the inner corolla surface is glabrous but rugose, the transverse ridges sometimes appearing as yel-



lowish or white lines, the lobes fringed with long vibratile clavate purple or white hairs. The inner horn of the inner corona-lobes is slender and slightly clavate at the apex.

90. *Stapelia comparabilis* White et Sloane, Stap., 1 Ed., 111. 1933.

(Description by B. L. Sloane) :

Species verosimiliter hybrida, in editione prima operis nostri depicta, arcte *Stapeliam incomparabilem* tangit, pulvine autem in media corolla predilatato annulum simulante coloreque pallidiori differt. Corona illae *S. incomparabilis* similis, a qua corniculis internis loborum coronae interioris haud clavatis discedit.

Stems: erect, branching at base, up to 20 cm. high, 15 mm. square, minutely pubescent; angles not prominent; teeth subulate, up to 4 mm. long, withering and turning white after a few weeks;

Flowers: several, successively developed from a peduncle at the base of the young stems;

*Pedice*l: 3.5 cm. long, 4 mm. thick, minutely puberulous;

Sepals: 9 mm. long, 3 mm. broad at base, lanceolate, acuminate, minutely puberulous;

Corolla: 9 to 12 cm. in diameter; smooth and glabrous outside, with 5 to 7 prominent reddish nerves on a light green ground; transversely rugose on the inner face, dull reddish-purple, sometimes with narrow irregular transverse yellowish or whitish lines on the edges of the rugosities, pubescent with short dark purple hairs in the cavity containing the corona, otherwise apparently glabrous but very minutely puberulous under a strong lens, ciliate to the tips of the lobes with clavate dark purple hairs 5 mm. long; united part broadly cup-shaped, 3.5 to 4.5 cm. in diameter and 1 cm. deep, suddenly contracted at the bottom into a short subpentagonal cavity containing the corona, the area around the mouth of the cavity raised and resembling an annulus about 2 cm. in diameter, puberulous with dark purple hairs; lobes very spreading, recurved or twisted, 3.5 to 5 cm. long, 2.2 to 3 cm. broad at base, ovate, acute or acuminate, margins of apical half recurved;

Outer corona: lobes ascending-spreading, 5 mm. long, 2 mm. broad, linear, subtruncate or rounded with a projecting tooth, or emarginate or bifid at the apex, dull purple or purplish-red with paler and spotted margins;

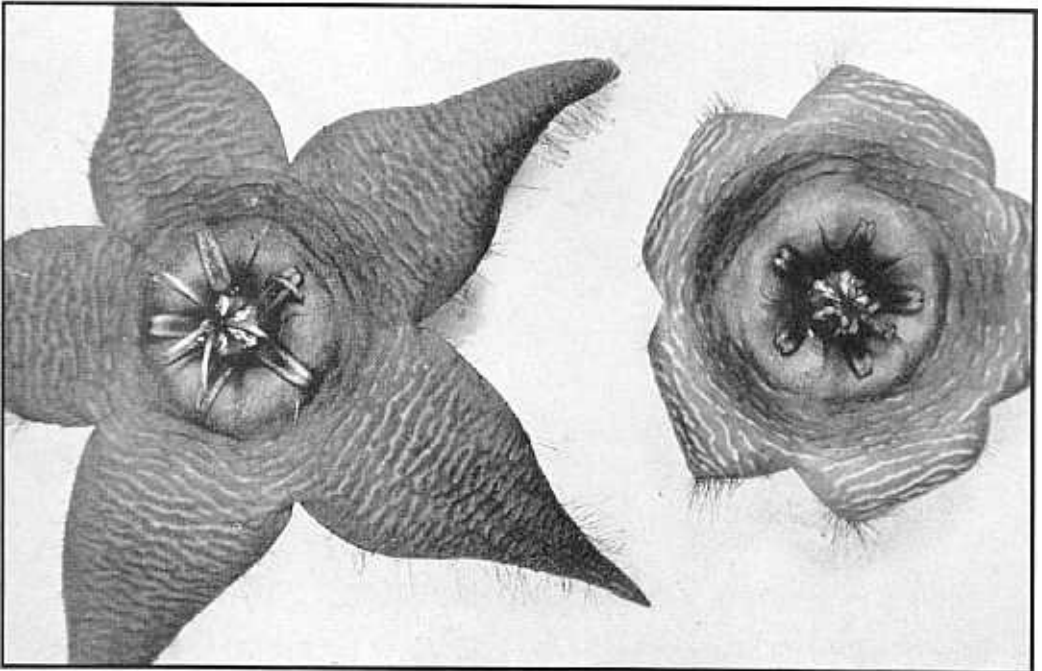


FIG. 640

Stapelia comparabilis White et Sloane x 1.2
Showing a flower with straight corolla-lobes and one with recurved lobes.

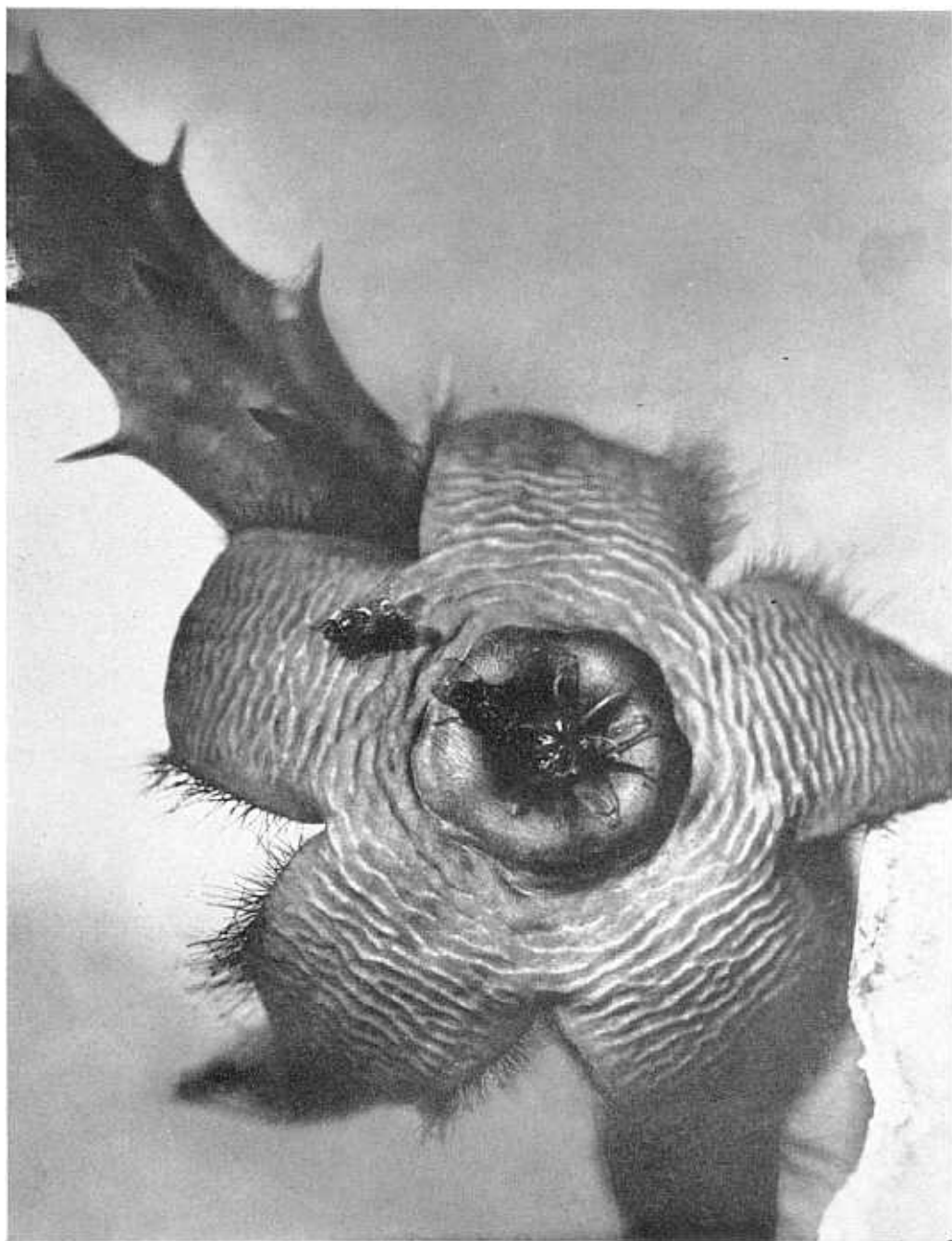


FIG. 641

Stapelia comparabilis White et Sloane

Photo by Dr. Llewellyn R. Lewis.

Inner corona: lobes 2-horned, purple-brown more or less speckled; outer horn suberect, 5 mm. long, laterally compressed, linear; inner horn connivent-erect below, diverging and twisted at the tips, laterally compressed, 8 mm. long, linear.

Origin: Unknown, probably a hybrid.

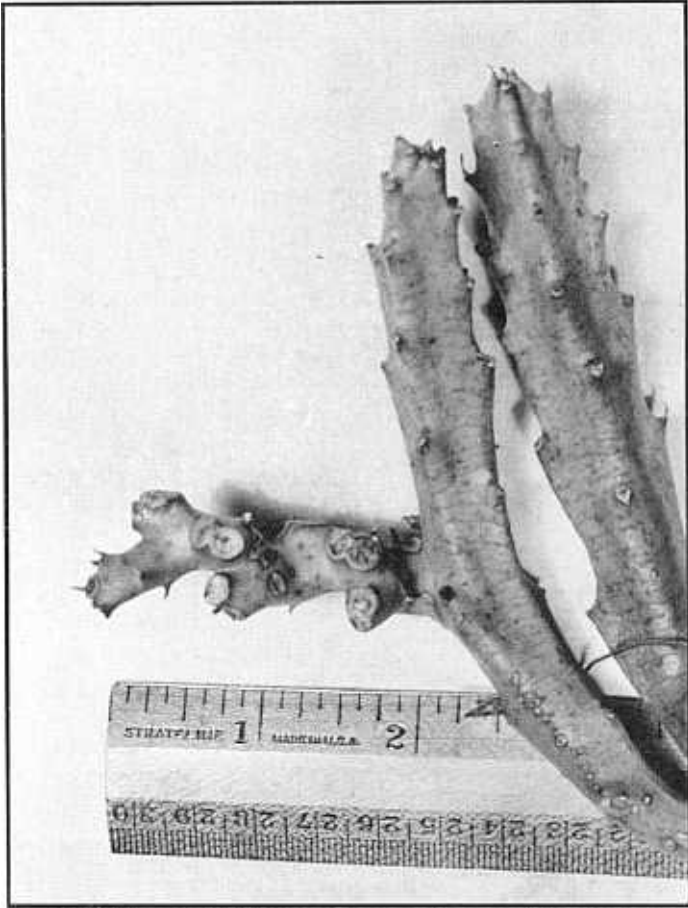


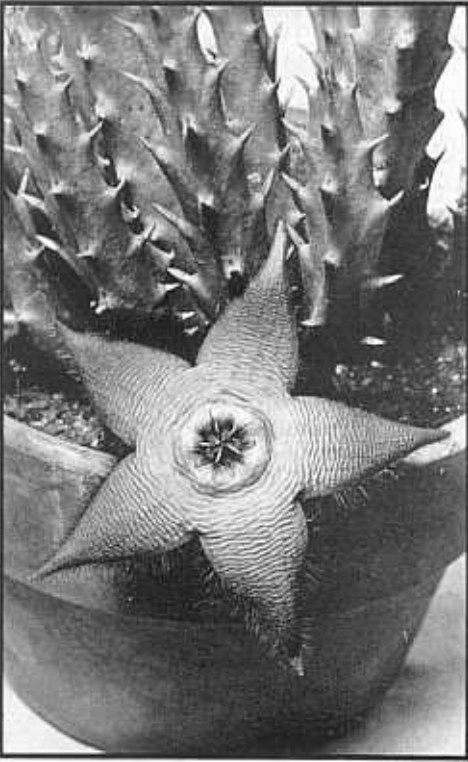
FIG. 642

Stapelia comparabilis White et Sloane

Showing length sometimes attained by the peduncle.
From the garden of G. A. Frick.

In the first edition of this work, we gave the name of *Stapelia comparabilis* to this *Tromotriche* hybrid. We chose the name to stress the close connection which exists between this plant and *S. incomparabilis*. It is usually idle to give names to such garden hybrids, but the plant is so widely distributed, at least in American collections, that it demands recognition. We know nothing of its origin. Dr. Brown

kindly compared our photographs with the herbarium material at Kew of *S. incomparabilis* and noted several points of difference, which, in his opinion, prevented the merging of the two plants into one. The color of the corolla is paler in *S. comparabilis*, but of a shade of purplish-brown unlike that of other species; the disk, while slightly depressed, is flatter than in *S. incomparabilis*; the *Tromotriche* cushion is



much more swollen, resembling a formed annulus; and the corona varies in minor details, in particular the inner horn of the inner corona-lobes is longer, more arched and not clavate. The corolla-lobes have the peculiarity of remaining quite flat in the flowers of some plants, merely recurving a little along the margins, while in others they curl up conspicuously almost from the moment the flowers open.

FIG. 643

Stapelia comparabilis White et Sloane x 0.75

91. *Stapelia namaquensis* N. E. Brown, Gard. Chron., xviii. 648. 1882.

Stapelia namaquensis var. *minor* N. E. Brown, Gard. Chron., xviii. 648. 1882.

(Description by Dr. Brown, Flora Cap., iv. i. 990):

Stems: procumbent or decumbent, $1\frac{1}{2}$ to $3\frac{1}{4}$ in. long, $\frac{3}{4}$ in. thick excluding the teeth, obtusely 4-angled, with very stout conical acute spreading teeth $2\frac{1}{2}$ to $3\frac{1}{2}$ lin. long, glabrous, green prettily marked with irregular purple stripes where exposed to the sun;

Flowers: 1 to 4 together, successively developed near the base or middle of the young stems;

*Pedice*l: $1\frac{1}{4}$ to $1\frac{1}{2}$ in. long, 2 lin. thick, glabrous, purplish, striped with darker purple-red;

Sepals: about $\frac{1}{4}$ in. long, ovate, acuminate, glabrous;

Corolla: in bud depressed-pentagonal with a very acuminate point; when expanded 3 to 4 in. in diameter, flat, with recurving lobes and a large very prominent solid-looking *annulus*, having the margin recurved so as to be nearly circular in transverse section, and the bottom of its cup densely covered with short erect stiff purple brown hairs; back smooth and glabrous; inner surface very rugose with crowded transverse papillate ridges on the lobes and minutely tuberculate-rugose on the annulus, pale greenish-yellow, everywhere covered with dark purple-brown thick transverse lines or rounded or transverse or confluent spots or labyrinthine markings, those on the annulus as large as or smaller than those on the lobes; *lobes* 1 to $1\frac{1}{4}$ in. long, $\frac{7}{8}$ to 1 in. broad at the base, broadly ovate, shortly or long-acuminate, not ciliate;

Outer corona: lobes ascending, $3\frac{1}{2}$ to 4 lin. long, linear or linear-lanceolate, entire, acute, yellow, dotted with purple-brown;

Inner corona: lobes connivent-erect, with recurved tips, simple, 2 to $2\frac{1}{2}$ lin. long, filiform, clavate at the apex, slightly gibbous at the base, but without an outer horn;

Follicles: subparallel, 5 to 6 in. long, $\frac{3}{4}$ in. thick, fusiform, acuminate, glabrous.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Little Namaqualand: near Komkam.

The "Namaqualand *Stapelia*," from Little Namaqualand, has been collected in different localities there since before 1874. Dr. Brown says: "it would appear to be as variable in color, ciliation and outer coronalobes as *S. variegata*, no two gatherings of it which I have examined being quite identical." The stems are 2 to 3 inches high, indistinguishable from those of *S. variegata*. The flowers are 3 to 4 inches in diameter, greenish-yellow with purple-brown markings, with a very large annulus indeed, its edge recurved so that it is almost circular in cross-section, the inner surface of the lobes crowded with transverse papillate ridges. Most curious of all, the inner coronalobes have no outer horn, but at most a slight gibbosity at the base. In the type the corolla-lobes are not ciliate, but they are so in the varieties, of which Dr. Brown

recognizes three among the many variable minor forms.

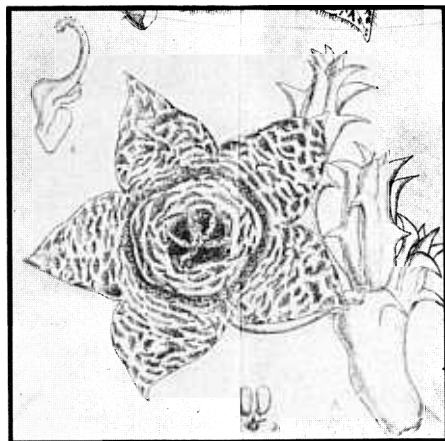


FIG. 644

Stapelia namaquensis N. E. Brown x 0.5
From Hooker's Icones Plantarum, 1890.

Var. a. *Stapelia namaquensis* var. *ciliolata* N. E. Brown, Gard. Chron., xviii. 648. 1882.

Stapelia ciliolata Rüst, Monatsschr. Kakt., vi. 43. 1896. *Nec* Todaro, 1861.

(Description by Dr. Brown, Flora Cap., iv. i. 991):

Corolla: shortly or minutely ciliate with simple or subclavate white or white and dark purple hairs mixed, spotting variable;

Outer corona: lobes entire, acute;

Otherwise as in the type.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Little Namaqualand: near Komkam.

The varietal name *ciliolata* means that the corolla-lobes are *secondarily* or minutely ciliate, as compared with *ciliata*, which would simply mean ciliate or fringed. On one occasion Dr. Rüst attributed to Prof. Todaro the name *S. ciliolata* for one of the varieties of *S. variegata*, but this form of the word is meaningless.

Var. b. *Stapelia namaquensis* var. *bidens* N. E. Brown, Flora Cap., iv. i. 991. 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes minutely or shortly ciliate with simple white hairs, sometimes almost absent;

Outer corona: lobes rather deeply bifid, with parallel teeth, with or without a minute tooth in the notch;

Otherwise as in the type.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not otherwise known.

Var. c. *Stapelia namaquensis* var. *tridentata* N. E. Brown, Gard. Chron., xviii. 648. 1882.

Stapelia tridentata Rüst, Monatsschr. Kakt., vi. 43. 1896.

(Description by Dr. Brown, Flora Cap., iv. i. 991):

Corolla: shortly or minutely ciliate as in the var. *ciliolata*; spotting variable;

Outer corona: lobes minutely and regularly or irregularly 3-toothed, or entire and truncate or very obtuse at the apex;

Otherwise as in the type.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Little Namaqualand: near O'okiep.

In the type of *Stapelia namaquensis* and the var. *ciliolata*, the outer corona-lobes are entire and acute; in the var. *bidens*, they are deeply bifid; in the present "three-toothed variety," all other forms of the outer corona-lobes are included, not only those which are 3-toothed, as the name implies, but also those which are truncate or very obtuse.

92. *Stapelia barklyi* N. E. Brown, Icon. Pl., t. 1909. 1890.

(Description by Dr. Brown, Flora Cap., iv. i. 986):

Plant: 3 to 4 in. high, branching at the base; *stems* erect, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, with obtuse angles and stout spreading conical teeth 2 to 3 lin. long, minutely puberulous;

Flowers: 1 to 2 together near the base of the stems;

*Pedice*l: stout, 2 to 4 in. long, glabrous to the eye, but with a very minute and rather sparse pubescence;

Sepals: $4\frac{1}{2}$ lin. long;

Corolla: 5 to 6 in. in diameter with the lobes extended, rotate, with a thick solid *annulus* 1 in. or more in diameter on the disk, glabrous on the back and on the slightly rugose inner surface of the lobes, with the annulus and disk around it loosely villous with long soft purple hairs and the lobes ciliate with similar hairs, purple-brown, marked with numerous transverse pale yellow lines on the disk and basal $\frac{2}{3}$ of the lobes, with their apical third entirely dark purple-brown; *lobes* $1\frac{3}{4}$ to 2 in. long, about $1\frac{1}{2}$ in. broad, ovate, acute or acuminate; *annulus* stout, solid, with 5 slight broad crenations formed by 5 shallow grooves radiating from the centre, "buff, with yellowish transverse wrinkles" (*Barkly*);

Outer corona: lobes ascending-spreading, $3\frac{1}{2}$ to 4 lin. long, 1 lin. broad, linear-oblong, acuminate, channeled down the face, yellow, dotted or mottled with purple-brown;

Inner corona: lobes 2-horned, purple-brown; outer horn $1\frac{1}{2}$ to 2 lin. long, free to the base, ascending, laterally flattened, subulate or deltoid-subulate, entire or toothed behind or at the apex; inner horn 3 to $3\frac{1}{2}$ lin. long, subulate, recurving from about the middle.

Type locality: Cape Prov.: Little Namaqualand: near O'okiep.

Distribution: Not further known.

"Barkly's *Stapelia*" is the natural hybrid-bridge between the *Stapeltonias* and *Orbeas*. It possesses the velvety stem surface of the *Stapeltonias*; also their flower coloring, purple-brown with transverse yellowish lines and wholly purple tips of the corolla-lobes; together with the hairy covering of the corolla disk and the ciliation of the lobes with long soft purple hairs. But the stems in their general appearance are rather those of the *Orbeas*, with obtuse angles and stout spreading teeth; and the 5 to 6-inch flowers have a fully developed *Orbea* annulus, thick and solid. Discovered near O'okiep, inland from Port Nolloth, Little Namaqualand, in Sir Henry Barkly's day, the species bears his name and commemorates his achievement in

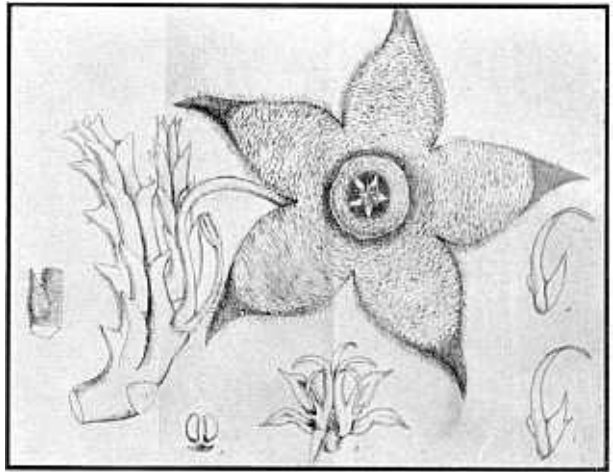


FIG. 645

Stapelia barklyi N. E. Brown x 0.5

From Hooker's Icones Plantarum, 1890.

forming the finest collection of South African Stapeliads since the "little garden at the Cape of Good Hope" of Francis Masson.

93. *Stapelia maculosoides* N. E. Brown, Gard. Chron., xxx. 270. 1901.

(Description by Dr. Brown, Flora Cap., iv. i. 984):

Stems: erect, about 3 in. high and 4 to 5 lin. thick, obtusely 4-angled, with very slightly concave sides, glabrous; angles very shortly toothed, with rudimentary deltoid acute ciliate leaves $1\frac{1}{2}$ to $\frac{2}{3}$ lin. long at the teeth;

Pedicel: $1\frac{1}{4}$ to $1\frac{1}{2}$ in. long, $1\frac{1}{3}$ lin. thick, glabrous to the eye, but with an exceedingly minute and very scattered pubescence;

Sepals: $2\frac{1}{2}$ lin. long, 1 lin. broad, ovate-lanceolate, acuminate, glabrous;

Corolla: about $2\frac{3}{4}$ in. in diameter, glabrous outside, 5-lobed to $\frac{2}{3}$ of the way down, nearly flat; disk without an annulus around the shallow central depression, dark violet-purple, with concentric irregular paler lines and spots, thinly covered with short purple hairs; lobes 12 to 13 lin. long, 8 to 9 lin. broad, oblong-ovate, acute, slightly rugose, marked with dark violet-purple transverse lines and spots on a light yellowish ground on the central part and with dark violet-purple margins and tips; ciliate with dark purple simple hairs $1\frac{1}{2}$ to 2 lin. long, otherwise glabrous;

Outer corona: lobes $2\frac{1}{2}$ lin. long, $\frac{1}{2}$ to $\frac{2}{3}$ lin. broad, linear, acute, channeled down the face, blackish-purple or blackish with a faint paler spot near the apex, glabrous;

Inner corona: lobes 2-horned, blackish, faintly speckled with paler color at the apex of the inner horn, glabrous; outer horn 1 to $1\frac{1}{8}$ lin. long, somewhat spreading, laterally flattened, narrowly attenuate-deltoid, acute; inner horn about 3 lin. long, subulate, strongly recurved just above the base, neither thickened nor acute at the apex.

Origin: Unknown: probably a hybrid raised at Didcot, England.

We shall see that the "Speckled Stapelia," *S. maculosa*, was in cultivation at least as early as 1799. The "Stapelia which resembles the Speckled Stapelia," *S. maculosoides*, was not observed until the turn of a second century, when in 1901 Justus Corderoy, well-known English collector of Didcot, Berkshire, found it in his garden and sent it to the Royal Botanic Gardens at Kew. It marks a distinct step in the direction of the *Stapeltonias*. The stems are still glabrous, as they are in *S. maculosa*, but less completely *Orbea*-like. All trace of any annulus has disappeared; the corolla-disk is more distinctly hairy; and the fringe of purple hairs persists; yet withal the flowers still have an unmistakable air of an *Orbea* kinship. It is extremely interesting to compare the transition from *Orbea* to *Stapeltonia* in these two species with the natural hybrid-bridge, as we have called it, in *S. barklyi*. The parents in the two cases probably came from similar clans, yet the

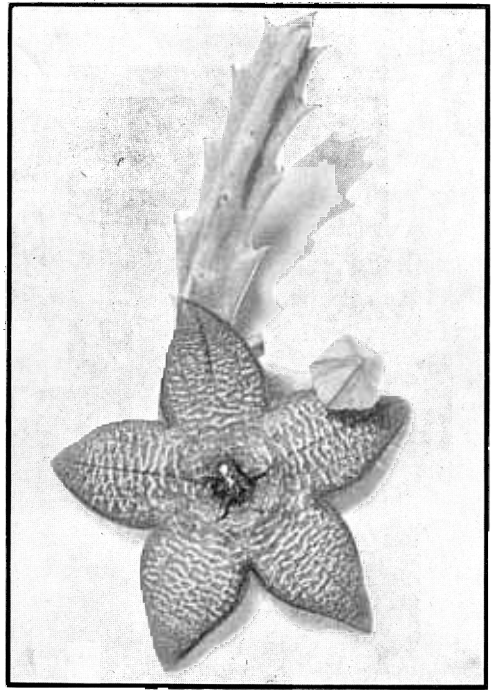


FIG. 646

Stapelia maculosoides N. E. Brown x 0.75

results are as distinct as can well be imagined.

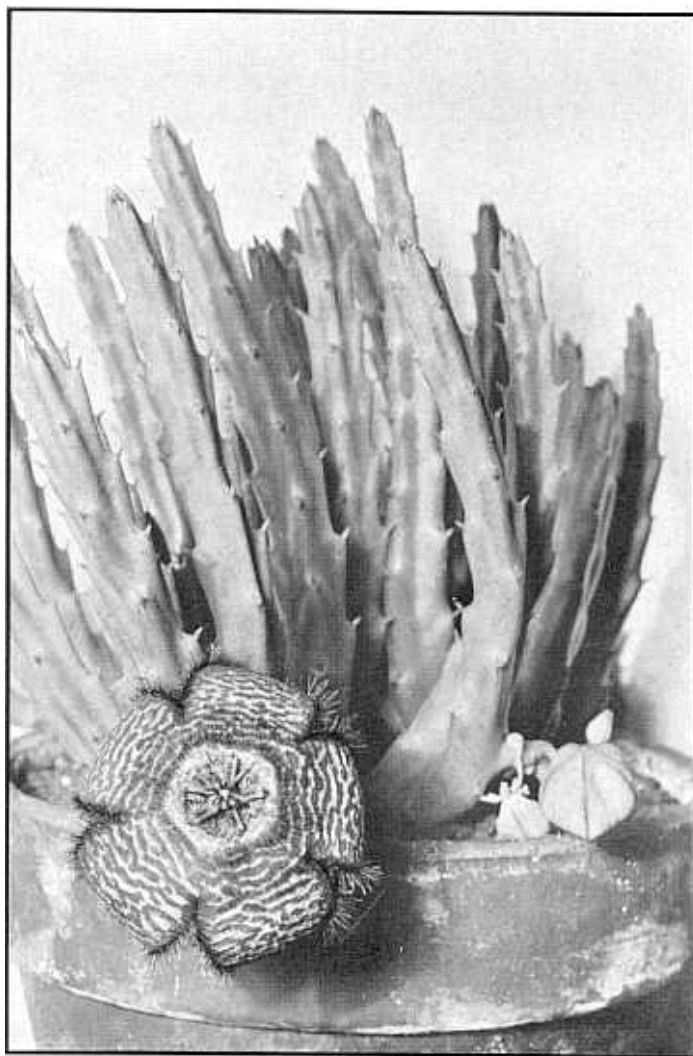


FIG. 647

Stapelia maculosa J. Donn x 1

94. *Stapelia maculosa* J. Donn, Hort. Cantab., 3 Ed., 43. 1804.

Stapelia mixta J. Donn, Hort. Cantab., 4 Ed., 53. 1807. *Nec* Masson, 1796.

Orbea maculosa Haworth, Syn. Pl. Succ., 37. 1812.

Stapelia maculata Poiret, Encycl. Method., Suppl., v. 234. 1817.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 985) :

Stems: erect, 3 to 4 in. high, 5 to 7 lin. thick excluding the teeth, obtusely 4-angled, with spreading conical acute teeth 1 to 2 lin. long, glabrous, green;

Flowers: solitary or 2 to 3 together near the base or towards the middle of the young stems, successively developed;

*Pedice*l: $1\frac{1}{4}$ to $1\frac{3}{4}$ in. long, glabrous;

Sepals: about $\frac{1}{4}$ in. long, ovate-lanceolate, acuminate, glabrous;

Corolla: 3 to 4 in. in diameter with the lobes extended, having an annulus on the disk; glabrous and smooth on the back, with the nerves and some large more or less confluent blotches purple-red or suffused with that color; slightly rugose on the inner face, with short or minute scattered pubescence on and around the annulus, otherwise glabrous, but ciliate to the tips of the lobes with simple purple hairs $1\frac{1}{2}$ lin. long, pale greenish-yellow, tinted with purple-red on the annulus and disk, thickly covered with transverse spots or short (longer on and around the annulus) thick irregular lines of purple-brown, very narrowly margined with and the tips of the lobes almost entirely dark purple-brown; disk flat, with a solid pentagonal annulus 8 to 10 lin. in diameter, about 1 lin. high, convex and slightly crenate-undulate at the top; lobes 1 to $1\frac{1}{4}$ in. long, $\frac{7}{8}$ to 1 in. broad, ovate, shortly acuminate;

Outer corona: lobes about $\frac{1}{4}$ in. long, $\frac{3}{4}$ to 1 lin. broad, variable in different flowers on the same plant and often in the same flower, linear or linear-lanceolate, entire and acute, obtuse or subtruncate, or bifid, or minutely or shortly 3-toothed, pale greenish-yellow, with a large purple-brown spot at the base, a clear space above and on each side of it and the upper part variably speckled or dusted, or the whole dotted almost to the base with purple-brown;

Inner corona: lobes equally 2-horned, pale greenish-yellow, thickly dotted or dusted with dark purple-brown: inner horn 2 to $2\frac{3}{4}$ lin. long, connivent-erect, with recurved tip, filiform, more or less clavate at the apex; outer horn 2 to $2\frac{3}{4}$ lin. long, ascending-spreading, laterally slightly compressed, straight, linear-filiform, obtuse, occasionally bifid.

Origin: Unknown: probably a hybrid raised in England.

The "speckled *Stapelia*" and the preceding species, *Stapelia maculosoides*, are both believed to be garden hybrids of English origin. They are interesting plants, more constant in their characters than most *Stapelia* hybrids, and well worthy a place in any collection. J. Donn, in his catalog of plants in the Botanical Gardens at Cambridge, England, stated that *S. maculosa* had been in cultivation since 1799. *S. vari-*

egata var. *mixta* may well have been one of its parents, for in a later edition of Donn's catalog the name *mixta* supplants the name *maculosa*. In any event the *Orbea* ancestry is recognizable, prominently so in the stems, less completely in the flowers. There is a distinct annulus, but it has not the recurved rim of *S. variegata* and there is a minute pubescence around it which is quite distinctive. Evidence of a *Stapeltonia* cousinship is furnished by the fringe of simple purple hairs around the corolla-lobes and by the margin of purple at the sides of the lobes which increases to a solid dark purple area at their tips. The corona is *Orbea*-like, but its details are variable. The outer corona-lobes are often three-toothed, though by no means always so. They suggested the name of a secondary hybrid (*Stapelia tridentata* Schultes, Syst. Veg., vi. 49. 1820). which was cultivated at Berlin between 1806 and 1812. "This," said Dr. Brown in the Flora Capensis, "is exactly like *S. maculosa* in the size, form and coloration of the corolla, and the corona is the same, but it differs in having no hairs upon the disk and annulus and the lobes are ciliate with clavate hairs $\frac{1}{2}$ lin. long; the spots on the

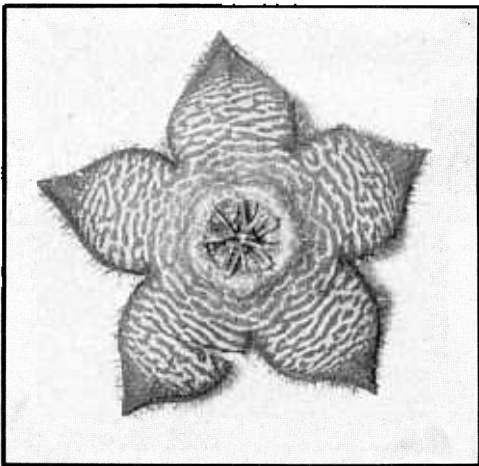


FIG. 648

Stapelia maculosa J. Donn x 0.75

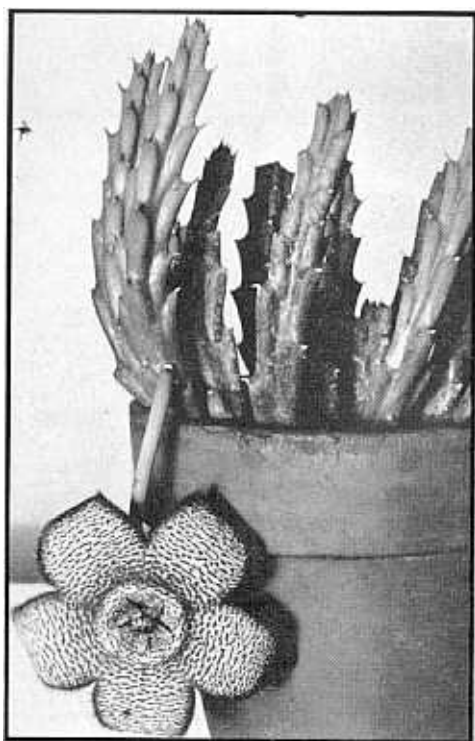


FIG. 649

Stapelia maculosa hybrid x 0.75

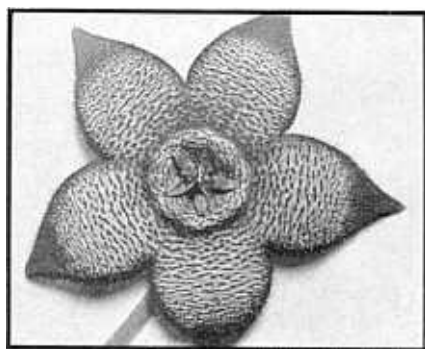


FIG. 650

Stapelia maculosa hybrid x 0.75

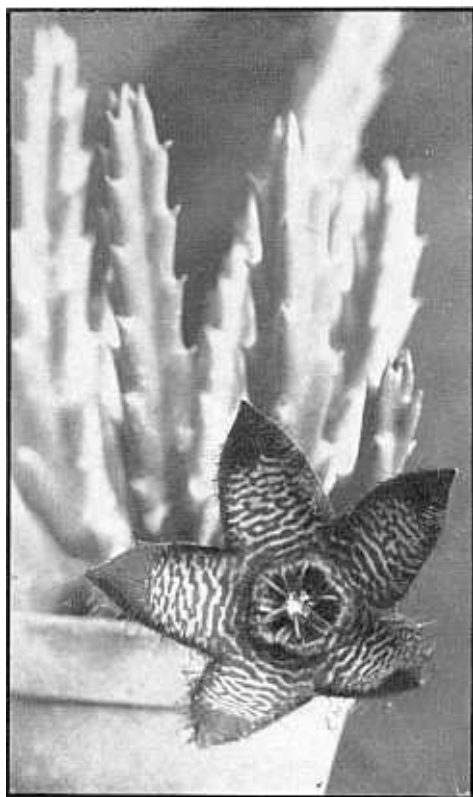


FIG. 650-A

Hybrid, related to *S. maculosa*

The markings are cherry-red in color.

Photo by F. Wiedemann.

lobes are also smaller and more numerous."

Doubtless numerous other modified forms of *S. maculosa* could be traced. We have observed in our own collection a striking example, shown in Figs. 649-650. The spots and lines on the corolla-lobes are small and numerous, the annulus is very prominent, the hairs on and around the annulus are purple and white and there are five bands of simple purple hairs running from the annulus to the sinuses between the lobes. The ciliation of the lobes consists of spindle-shaped black hairs 2 mm. long. The corona is quite handsome, the outer coronalobes ovate-oblong and three-toothed at the apex, the lateral teeth parallel or slightly diverging. The plant is just one more whim of hybridization, but one so beautiful (though blessed with a memorable

odor) that we do not resist the impulse to reproduce our photographs here.

95. *Stapelia bijliae* Pillans, sp. nov.

(Description by N. S. Pillans) :

Species *Stapeliae gemmiflorae* relata, sed corolla annulata, tubi fauce pubescente, coronae exterioris lobis praeter dentes apicales integris recedit.

Stems: 5 to 8 cm. high, about 1 cm. square, erect, branching at the base, obtusely 4-angled, glabrous, grey-green; teeth on the angles terminating in deciduous subulate leaves about 5 mm. long;

Flowers: 1 or 2 near the base of the young stems, developing successively;

*Pedice*l: about 3 cm. long, 2 mm. thick, erect-spreading, glabrous;

Sepals: about 6 mm. long, ovate-lanceolate, acute, glabrous;

Corolla: 6½ to 7 cm. in diameter, with a shallow *tube* and a low *annulus* at the mouth, flattish on the disk, with ovate acute slightly recurved lobes; glabrous on the outer surface; the inner surface slightly rugose, glabrous except for a short scanty purplish pubescence in the tube and on the annulus and purple clavate cilia on the lobes; purple-brown, with faint ochre-yellow lines on the edge of the annulus and on the lower rugosities of the disk;

Outer corona: purple-brown, lobes scarcely 5 mm. long, narrowly oblong, somewhat channeled above;

Inner corona: purple-brown, lobes divided near the base into an ascending recurved filiform segment 6 mm. long and a linear-oblong dorsal wing 5 mm. long, toothed on the inner edge near the apex.

Type locality: Cape Prov.: Mossel Bay Distr.: near Great Brak River.

Distribution: Not further known.

A new species, named by Mr. Pillans in honor of Mrs. D. van der Bijl, of Great Brak River, formerly President and now Secretary of the South African Succulent

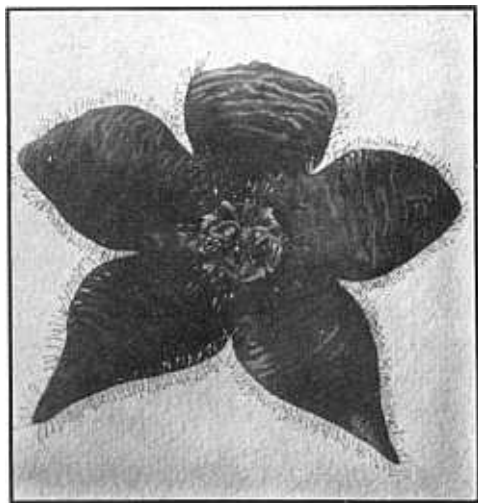


FIG. 651

Stapelia bijliae Pillans x 1.

From a water color drawing by Carl Luckhoff.

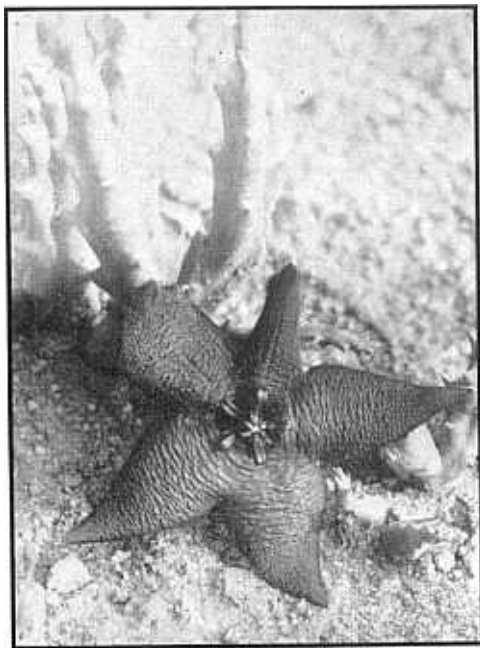


FIG. 652

Stapelia bijliae Pillans x 0.8

Photo by Dr. J. Luckhoff.

Society. Mrs. van der Bijl discovered the plant about 1930 near her home, on a high hill near the sea. The type is in the Bolus Herbarium, Kirstenbosch (van der Bijl, 6). It is allied to *Stapelia gemmiflora*, but according to Mr. Pillans is distinguished by the presence of an annulus on the corolla, by the scanty pubescence in the tube, and by the outer corona-lobes being entire except for their apical teeth.

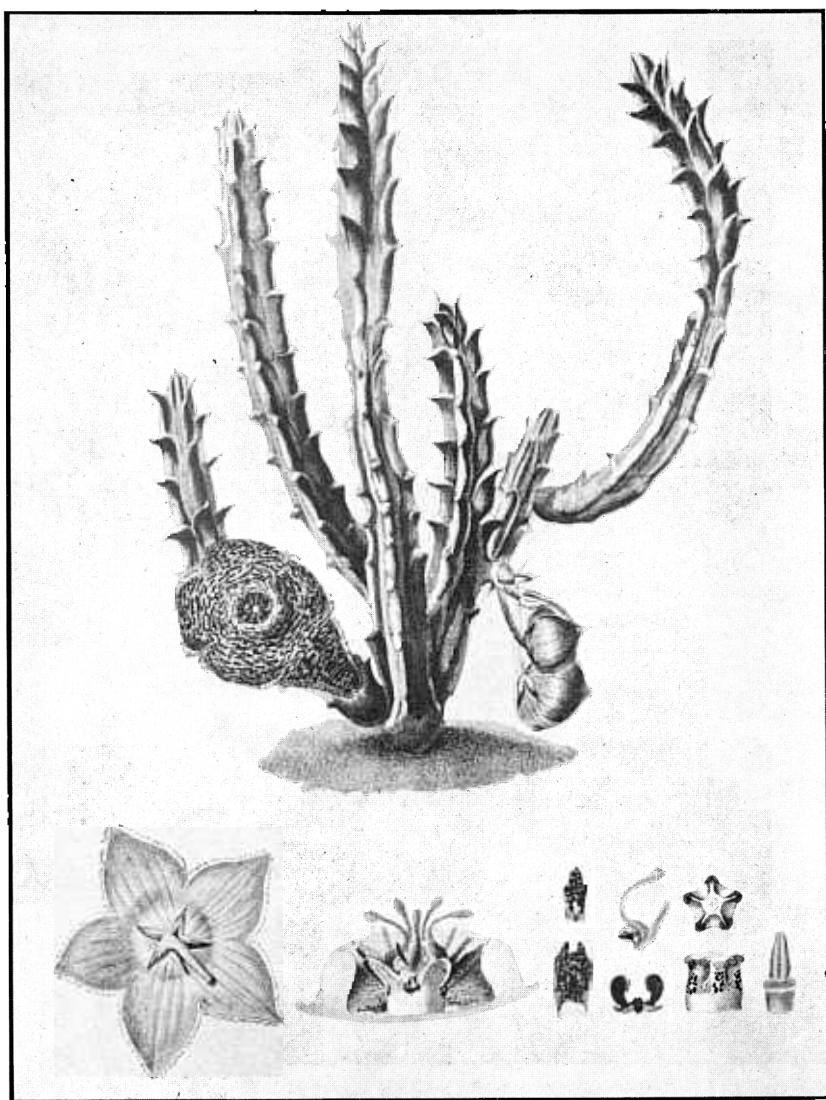


FIG. 653

Stapelia mutabilis Jacquin x 0.5From Jacquin: *Stapeliarum Descriptiones*, 1806-19.96. *Stapelia mutabilis* Jacquin, *Stap.*, t. 29. 1806-19.*Orbea mutabilis* Sweet, *Hort. Brit.*, 1 Ed., 276. 1827.*Tromotriche mutabilis* Sweet, *Hort. Brit.*, 2 Ed., 358. 1830.*Tromotriche mutabilis* var. *variabilis* Sweet, *Hort. Brit.*, 2 Ed., 358. 1830.*Stapelia neglecta* Todaro, *Hort. Panorm.*, i. 47. 1876-78.*Stapelia passerini* Todaro, *Hort. Panorm.*, i. 47. 1876-78.*Stapelia fuscata* Hort., Todaro: *Hort. Panorm.*, i. 47. 1876-78. *Nec* Jacquin, 1806-19.*Stapelia umbilicata* Thuret, Todaro: *Hort. Panorm.*, i. 47. 1876-78.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 982):

Stems: 3 to 18 in. high, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, acutely 4-angled, with slightly concave or flattish sides and rather stout conical spreading teeth about 3 lin. long, glabrous, green, sometimes tinged with purple, slightly glaucous;

Flowers: 1 to 3 together, from near the base of the younger or higher up on the older stems, successively developed;

*Pedice*l: $\frac{1}{4}$ to $1\frac{1}{6}$ in. long, glabrous;

Sepals: $2\frac{1}{2}$ to $4\frac{1}{2}$ lin. long, ovate-lanceolate, acuminate, glabrous;

Corolla: with the lobes very much recurved and then about $1\frac{1}{2}$ in. in diameter, glabrous on both surfaces, ciliate nearly or quite to the tips of the lobes with vibratile clavate purple hairs about $\frac{3}{4}$ lin. long, with the disk raised into an erect solid pentagonal *annulus* $1\frac{1}{2}$ to 2 lin. high around and forming a short tube containing the corona, but flat on the back beneath it; *lobes* 7 to 11 lin. long, 7 to 10 lin. broad, broadly ovate, acute or shortly acuminate; back smooth, pale green tinged with purplish on the nerves and tips of the lobes; inner face slightly rugose



FIG. 654

Stapelia mutabilis Jacquin x 0.6

Photo by A. Probst and E. R. Svensson.

to nearly smooth, with the apical third of the lobes light or dark purple-brown and the remainder pale yellowish or greenish-yellow, covered with transversely elongated spots or thick or narrow (and then crowded) irregular transverse purple-brown lines, becoming fainter on the annulus;

Outer corona: lobes $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, $\frac{3}{4}$ to 1 lin. broad, rectangular or subquadrate, very variable in toothing, bifid, with parallel teeth, or with a small tooth in the notch and the outer edges of the lateral teeth tapering to the apex, or equally 3-toothed, or with 3 minute teeth projecting from the middle of the truncately contracted apex, pale yellowish, speckled with purple-brown and often with a broad central stripe of the same color;

Inner corona: lobes 2-horned, pale yellowish, thickly dotted with purple-brown; outer horn sub-erect or ascending, 1 to $1\frac{1}{2}$ lin. long, filiform, slightly clavate at the apex; inner horn 2 lin. long, filiform, connivent-erect, recurving at the clavate tips;

Follicles: subparallel, 7 to 8 in. long, about 5 lin. thick, terete-fusiform, tapering into a long hooked beak, smooth, glabrous.

Origin: Raised from seed in the Imperial Gardens at Schönbrunn, near Vienna.

The "changeable *Stapelia*" is, according to Dr. Brown, "almost certainly a hybrid raised from seed of *Stapelia revoluta*." It was first observed in the Imperial Gardens at Schönbrunn by Baron de Jacquin about 1800 and has never been found wild in South Africa. Its affinities appear to be towards the *Orbeas*, as those of *S. bella* were towards the *Stapeltonias*. It retains the *Tromotriche* fringe of vibratile clavate hairs, and the coloring of the corolla, which modulates from the pale yellow of the an-

nulus through a series of transverse purple-brown lines to the dark purple-brown margins and tips of the lobes, is suggestive of *S. revoluta* var. *tigridia*. But the central cushion has become emancipated and forms an erect solid annulus enclosing the corona as in a tube. This *Mutabilis* annulus and the modifications it assumes throughout a

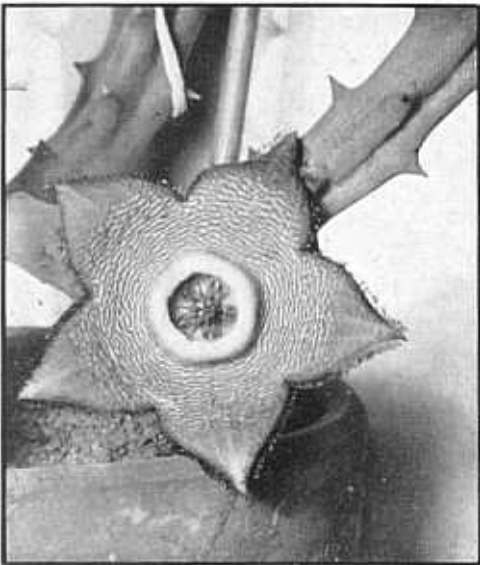


FIG. 655

Stapelia mutabilis Jacquin x 0.75



FIG. 656

Seeds of *Stapelia mutabilis* leaving the seed-pod.

Photo by F. Wiedemann.

considerable progeny of secondary hybrids can be differentiated from the annulus of *S. variegata* because it is not recurved at the margin, or at most very slightly so. The flowers remain expanded from four days to a week. Sometimes they are odorless; at other times they have a faint odor, yet one sufficiently disagreeable to provoke comment. Most of the recorded varieties and hybrids exist to-day much too far diluted by the passing of many additional hybridizing generations since the names were coined to warrant serious study. We have listed some of these names below on p. 683.

Others we have transferred directly to the Variegata list on pp. 716-719. There are four hybrids of which the names are most frequently met with now-a-days, *S. angulata*, *S. bicolor*, *S. cupularis* and *S. discolor*. The plants bearing these names will only occasionally be found to be true specimens; but the descriptions may well be added so that the reader can compare them for himself with the masqueraders who assume the names in so many collections. When true plants are met with they may well be prized, for, as hybrids go, they are each of considerable beauty and interest.

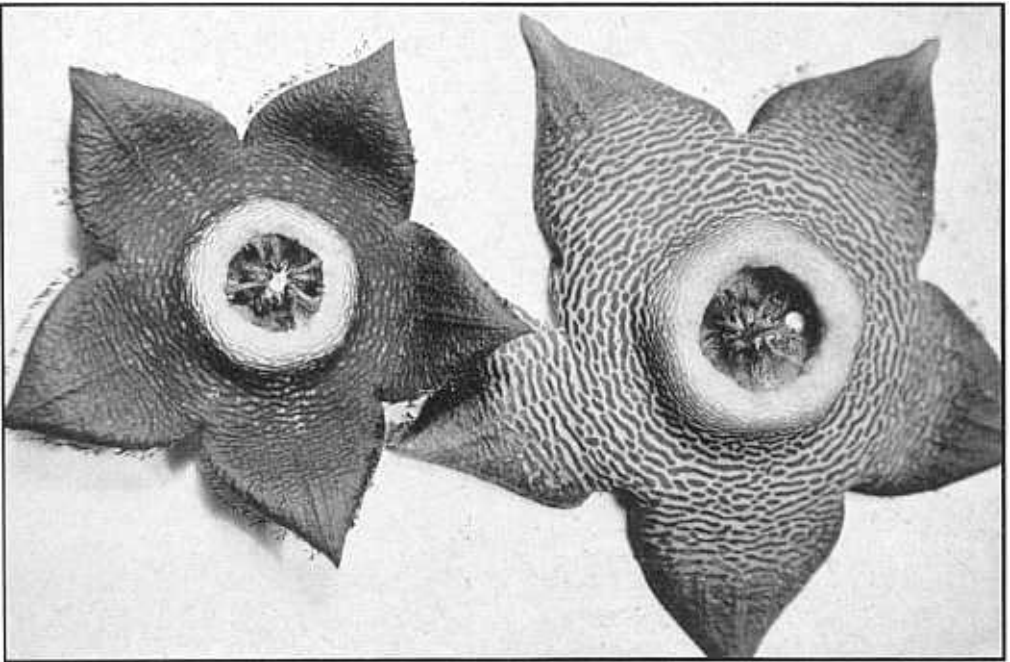


FIG. 657

Stapelia mutabilis Jacquin compared with *Stapelia bicolor* Berger (left) x 1.5

Stapelia mutabilis

Stapelia angulata Tödarö, Hort. Panorm., i. 54. 1876-78.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 990):

Stems: about $2\frac{1}{2}$ in. high, like those of *Stapelia variegata*;

Corolla: about $2\frac{1}{2}$ in. in diameter, purple-brown, marked to the tips of the lobes with numerous labyrinthine transverse yellowish lines; *lobes* ovate, spreading or recurved, minutely ciliate with clavate hairs; *annulus* pentagonal or subcircular, with an erect or scarcely recurved margin, light yellowish, dotted with purple-brown;

Outer corona: lobes more or less narrowed and 2 to 3-toothed at the apex;

Inner corona: lobes 2-horned, pale yellowish, minutely dotted with purple-brown; horns filiform, clavate, subequal or the outer shorter.

The "angled *Stapelia*" is a hybrid first noticed in the Botanical Garden at Palermo, Italy, about 1875. It doubtless derives from *S. mutabilis*, from which it differs in its small yellow pentagonal annulus, the markings on which are not at all prominent.

Stapelia cupularis N. E. Brown, Gard. Chron., xxii. 45. 1897.

(Description by Dr. Brown, Flora Cap., iv. i. 990):

Stems: like those of *S. variegata*, 3 to 8 in. long, 4 to 7 lin. thick;

Flowers: 1 to 3 together;

Corolla: in bud flattened, with a short obtuse point, pentagonal, with the sinistral angles projecting and slightly recurved; when expanded about 2 in. in diameter, slightly rugose on the glabrous inner face, pale lemon-yellow (rather lighter on the annulus), thickly covered with dark purple-brown spots, which are often confluent into irregular lines so that the yellow ground forms labyrinthine lines between them; *disk* saucer-shaped; *annulus* about $\frac{2}{3}$ in. in diameter; $\frac{1}{4}$ in. deep, nearly circular, cup-shaped, with an erect acute margin; *lobes* recurved, 8 to 9 lin. long and about the same in breadth, ovate, acute, ciliolate with minute clavate hairs;

Corona: *Outer corona*-lobes $2\frac{1}{2}$ lin. long, deeply bifid with parallel slightly diverging teeth and a minute tooth at the base of the notch, pale greenish-yellow, dotted at the apex and down the middle with dark purple-brown and with a spot of it at the base; horns of the *inner corona*-lobes subequal, both clavate at the apex, pale yellow, dotted with purple-brown, outer horn slightly spreading.

Origin: A hybrid raised in Europe.

According to Dr. Brown, this is doubtless a hybrid between *S. mutabilis* and some form of *S. variegata*. It is typical of the *Mutabilis* strain by reason of its erect annulus, with an acute outer margin; but the cup-shaped inside crater is wholly distinctive, and gives the plant its name, the "cup-shaped *Stapelia*."

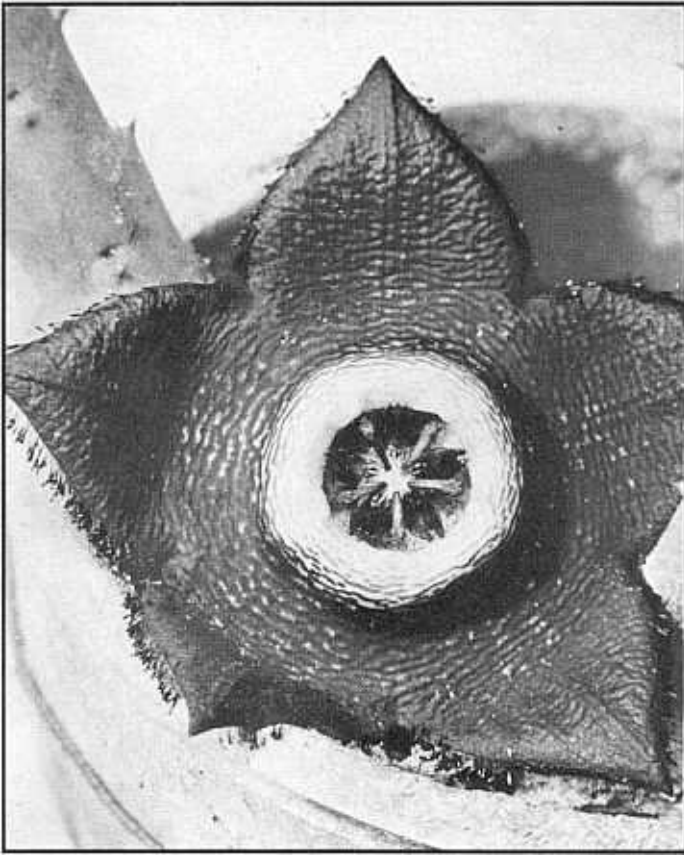


FIG. 658

Stapelia bicolor Berger x 2.

***Stapelia bicolor* (Dammann) Berger, Stap. und Klein., 196. 1910.**

Stapelia mutabilis var. *bicolor* Dammann, Rüst: Monatsschr. Kakt., vi. 37. 1896.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 983):

Stems: as in *Stapelia variegata*;

Corolla: about $2\frac{1}{4}$ in. in diameter; *lobes* minutely ciliate, dark purple-brown, with about 6 longitudinal rows of small yellowish spots; *annulus* circular, brighter purple-brown with a few elongated yellow markings;

Outer corona: lobes oblong-linear, narrowed at the minutely bifid apex, pale yellow, with a purple-brown spot at the base and dots on the upper half;

Inner corona: outer horn of lobes suberect.

The "two-colored *Stapelia*" is a hybrid of unknown origin. Its flowers present a corolla in two strongly contrasting shades

of purple-brown. Fig. 657 affords an interesting comparison with *S. mutabilis*.

Stapelia discolor Todaro, Hort. Panorm., i. 49. 1876-78.

Stapelia mutabilis var. *discolor* N. E. Brown, Flora Cap., iv. i. 982. 1909.

(Description by Dr. Brown, l.c.):

Corolla: dark purple-brown, with inconspicuous yellowish transverse lines on some of the rugosities on the disk and base of the lobes; *annulus* yellowish with irregular purple lines;

Outer corona: lobes dark purple-brown, fuscous along the margins, with a median yellowish stripe.

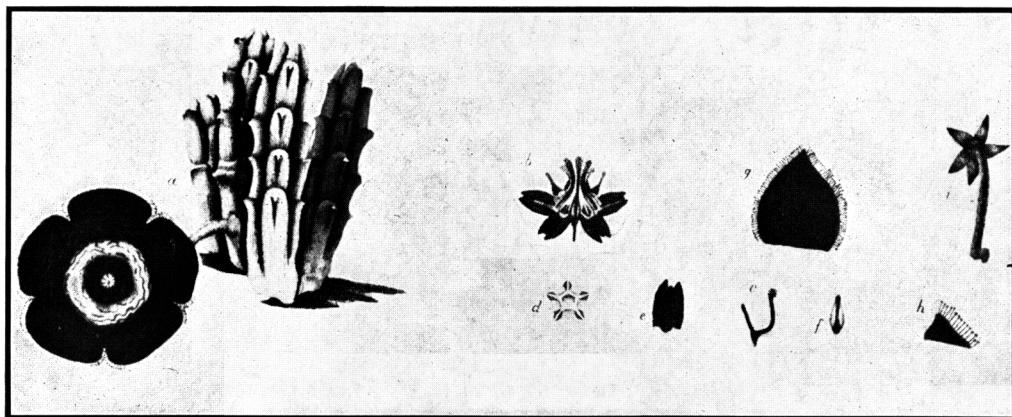


FIG. 659

Stapelia discolor Todaro

from a drawing by Todaro in Hort. Bot. Panorm., 1876-78

The "varicolored *Stapelia*" is a hybrid of *S. mutabilis*, which originated in the Cels Nursery in Paris about 1875. Contrasts of color, such as that found in its flowers, occur in numerous hybrids, but they belong mostly in the *Variegata* group and have a

distinctly recurved annulus. In the genuine *S. discolor* the annulus should be erect and not recurved. None of the plants we have seen under the name have been true specimens.

**Additional varieties and hybrids related to STAPELIA MUTABILIS
with their synonyms.**

Stapelia mutabilis var. *furva* N. E. Brown, Flora Cap., iv. i. 982. 1909.

Stapelia mutabilis var. *jacquini* Berger, Stap. und Klein., 193. 1910.

Stapelia mutabilis var. Jacquin, Stap., t. 30. 1806-19.

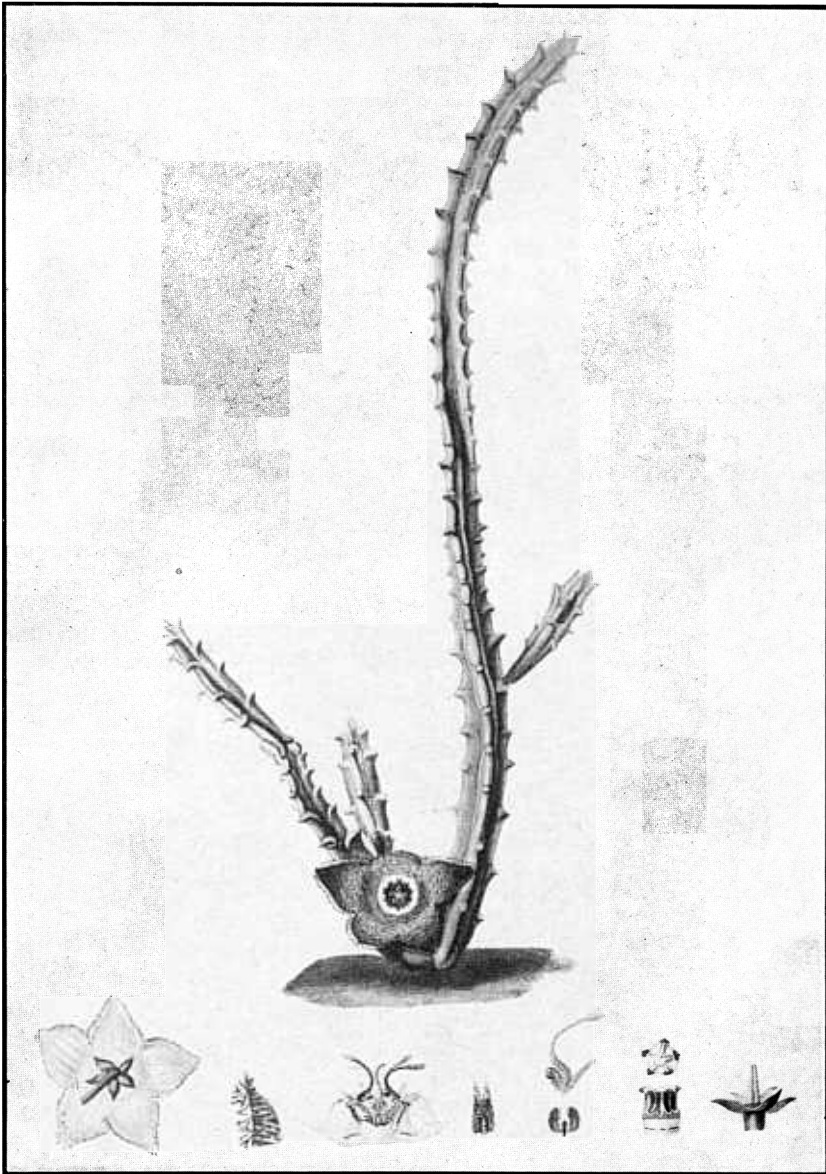


FIG. 660

Stapelia mutabilis var. *jacquini* Berger

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.



FIG. 661

Stapelia bayfieldii N. E. Brown x 1.

From a drawing by N. E. Brown in the Gardeners' Chronicle, 1908.

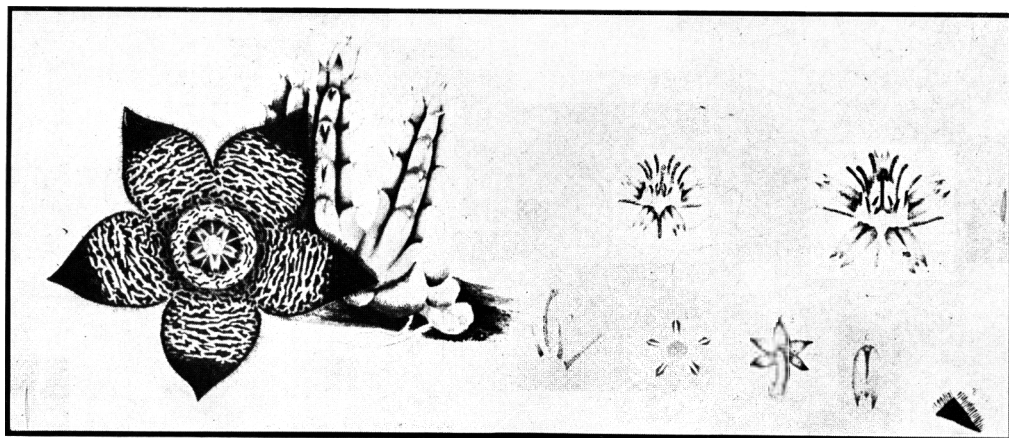


FIG. 662

Stapelia trifida Todaro x 0.6

From a drawing by Todaro in Hort. Bot. Panorm., 1876-78.

Stapelia bayfieldii N. E. Brown, Gard. Chron., vii. 430. 1877.

Stapelia connata Rüst, Berger: Stap. und Klein., 195. 1910.

Stapelia immaculata Rüst, Berger: Stap. und Klein., 195. 1910.

Stapelia muricata Rüst, Monatsschr. Kakt., vi. 37. 1896.

Stapelia nemea (Dammann) Berger, Stap. und Klein., 194. 1910.

Stapelia angulosa var. *nemea* Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.

Stapelia nemesis (Dammann) Berger, Stap. und Klein., 194. 1910.

Stapelia mutabilis var. *nemesis* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.

Stapelia thetis (Dammann) Berger, Stap. und Klein., 197. 1910.

Stapelia mutabilis var. *thetis* Dammann, Rüst: Monatsschr. Kakt., vi. 37. 1896.

Stapelia trifida Todaro, Hort. Panorm., i. 45. 1876-78.

? *Stapelia sanguinea* Pasquale, Cat. Ort. Nap., 99. 1867.

Stapelia uranus Rüst, Berger: Stap. und Klein., 196. 1910.

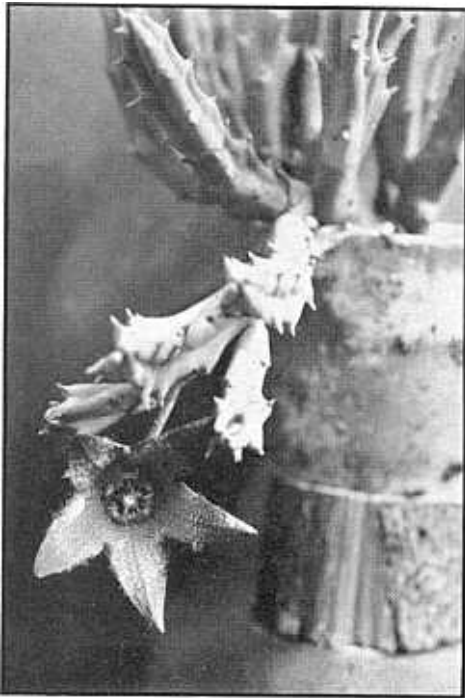


FIG. 663

Stapelia trifida Todaro x 0.5

Photo by F. Wiedemann.

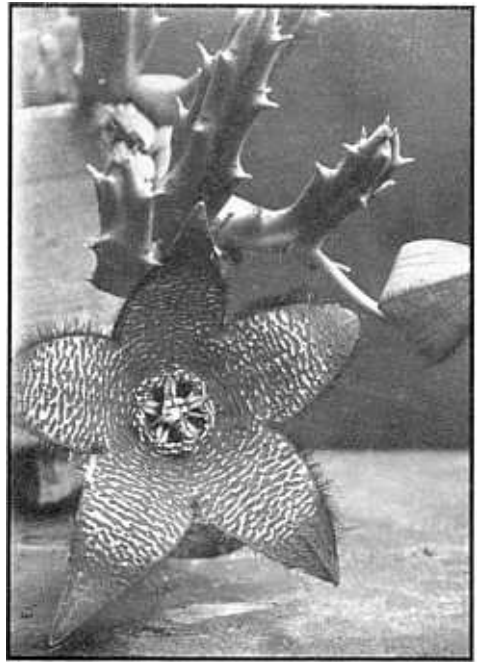


FIG. 664

Stapelia trifida Todaro x 0.8

Photo by F. Wiedemann.

S. trifida was named from an occasional character of the outer corona-lobes. Usually these are bifid, with the segments parallel or slightly diverging, but sometimes a shorter middle tooth renders them technically "trifid." The corolla is 3 in. in diameter, pale yellow, with purple-

brown markings and the tips of the lobes mostly of a uniform purple-brown; the lobes ciliate with thick or slightly clavate purple-brown hairs. The annulus is about 10 lin. in diameter, with the obtuse rim erect.

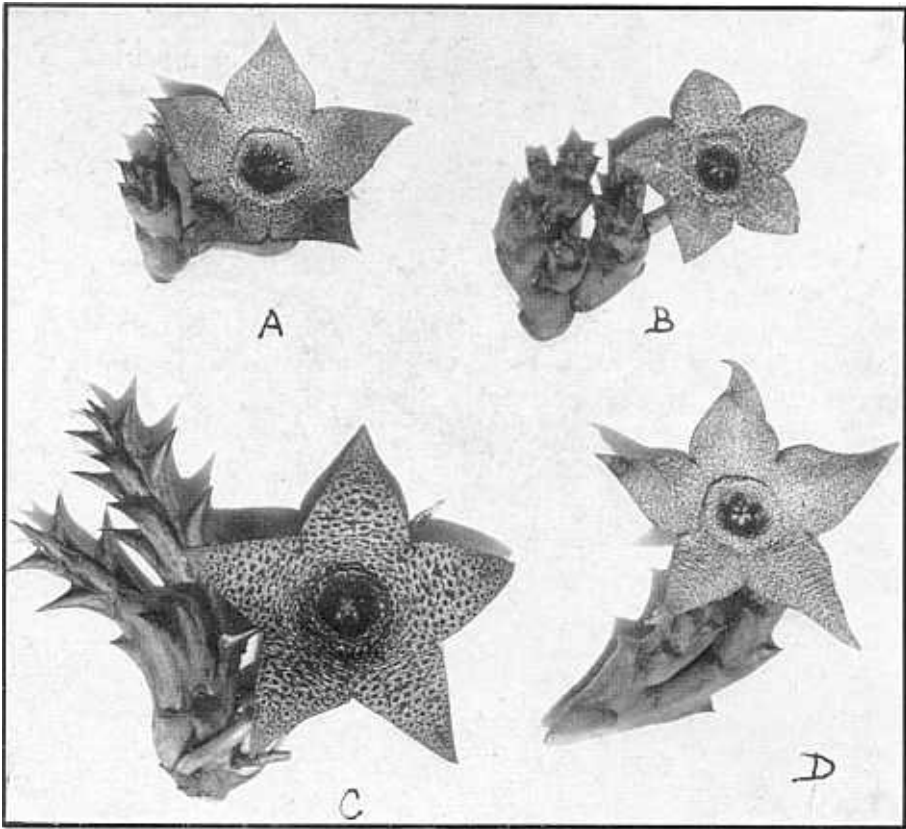


FIG. 665

(B) *Stapelia pulchella* Masson x 1(C) *S. verrucosa* Masson var.

(A and D) Hybrids of B and C.

From the collection of David Pringle.

97. *Stapelia pulchella* Masson, Stap. Nov. 22. 1796.*Podanthes pulchella* Haworth, Syn. Pl. Succ., 33. 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 989):

Stems: like those of *Stapelia variegata*, 2 to 4 in. high, erect or decumbent at the base, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, obtusely 4-angled, with stout conical acute spreading teeth, glabrous, green;

Flowers: usually 3 or more together, successively developed near the base of the stems;

*Pedice*l: 1 to $1\frac{1}{4}$ in. long, glabrous;

Sepals: $1\frac{1}{2}$ to $2\frac{1}{2}$ lin. long, ovate to lanceolate, acute or acuminate, glabrous;

Corolla: $1\frac{1}{4}$ to $2\frac{1}{4}$ in. in diameter, smooth on the back, minutely tuberculate-rugulose and glabrous on the inner face, not ciliate, sulphur-yellow, covered with numerous purple-brown dots and specks, which are smaller and more crowded upon the annulus, and the lobes sometimes narrowly edged with purple-brown; *disk* shallowly saucer-shaped, with a solid more or less pentagonal *annulus* 4 to 7 lin. in diameter, raised $\frac{1}{3}$ to $\frac{2}{3}$ lin. above the surface, and a pentagonal pale purplish area margined with brighter purple-red or occasionally entirely sulphur-yellow at the bottom of its cup; *lobes* 5 to 10 lin. long, 5 to 8 lin. broad, ovate or deltoid-ovate, very acute or acuminate, very spreading or recurved;



FIG. 666

Stapelia pulchella Masson x 1.5

Form of the flower with longer corolla-lobes.

Outer corona: lobes $1\frac{1}{4}$ to $1\frac{1}{2}$ lin. long, $\frac{1}{2}$ lin. broad, linear or oblong-linear, obtuse, truncate, emarginate or minutely 3-toothed at the apex, dark purple-brown with a pale yellowish spot or somewhat A-shaped mark below the apex and sometimes along the margins;

Inner corona: lobes unequally 2-horned, pale yellow spotted with dark purple-brown, or purple-brown with yellow markings; outer horn ascending, $\frac{1}{4}$ to $\frac{1}{2}$ lin. long, conical or conical-subulate, obtuse; inner horn $\frac{3}{4}$ to $1\frac{1}{4}$ lin. long, connivent-erect or with recurving tips, filiform, varying from distinctly clavate to not at all thickened at the apex.

Type locality: South Africa: without locality.

Distribution: Cape Prov.: Uitenhage Distr.: near the bank of the Zwartkops River in the vicinity of Zwartkops Station; Port Elizabeth Distr.: sand-dunes along the coast south of Port Elizabeth; Alexandria Distr.: Sandflats; Humansdorp Distr.



FIG. 667

Stapelia pulchella Masson x 0.75

From W. I. Beecroft Gardens. Photo by Havens.

The "little beauty *Stapelia*" is a plant discovered by Francis Masson in 1793 or earlier. It is local to Port Elizabeth and vicinity within about 60 miles. The stems, with stout acute spreading teeth, are like those of *S. variegata*, but on a slightly smaller scale, 2 to 4 inches high. The corolla is around 2 inches wide, sulphur-yellow with purple-brown dots, smaller and more crowded on the solid annulus. The inner corona-lobes are two-horned, the tips of the inner horn varying from distinctly clavate to not at all thickened at the apex. Dr. Brown pointed out that by its inner corona-lobes and by its annulus the species completely connects the groups to which *S. variegata* and *S. verrucosa* respectively



FIG. 668

Stapelia pulchella Masson x 1.25

belong. It hybridizes easily and Fig. 665, contributed by David Pringle of Port Elizabeth, illustrates two varieties. The type is shown in "B." The variety "D," with longer acute corolla-lobes, was pointed out by Mr. Pillans and Mr. Pringle is authority for "A." "C" shows *S. verrucosa* and Mr. Pringle is of the opinion it may be one of the parents of the varieties.

98. *Stapelia lepida* Jacquin, Stap., t. 43. 1806-19.*Podanibes lepida* Haworth, Syn. Pl. Succ., 34. 1812.*Orbea lepida* Haworth, Suppl. Pl. Succ., 13. 1819.*Stapelia limosa* Salm-Dyck, Hort. Dyck., 266. 1834.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 992):

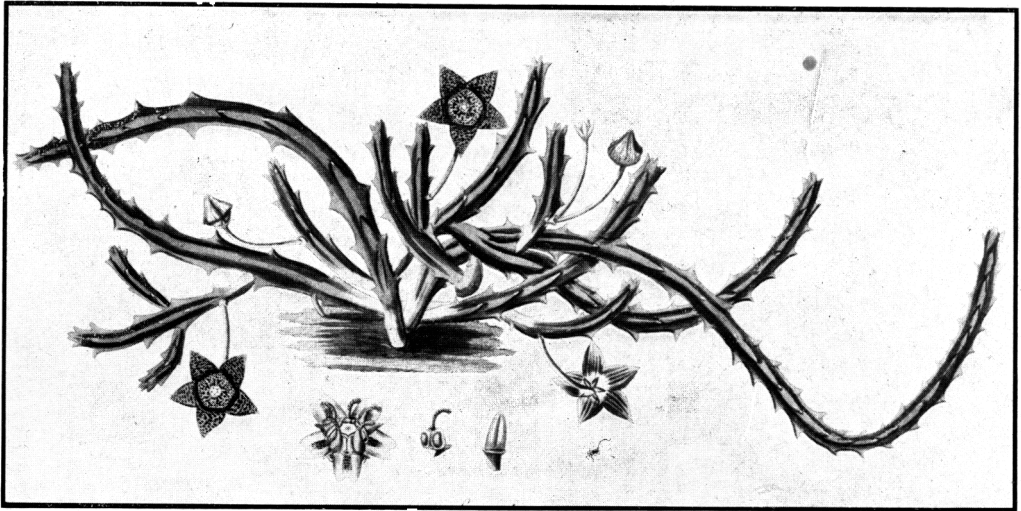
Plant: very like *Stapelia variegata*, glabrous in all parts, compactly branched; *stems* 2 to 3 in. long, 4 to 5 lin. thick, glabrous;*Flowers*: 1 to 2 together near the base of the stems, successively developed;*Pedice*l: $\frac{2}{3}$ to 1 in. long;*Sepals*: 2 to $2\frac{1}{2}$ lin. long, ovate, acute or acuminate;*Corolla*: rather small, about $1\frac{1}{2}$ in. in diameter, with a distinct annulus on the disk; inner face transversely rugose on the lobes, granulate-tuberculate on the annulus, glabrous and not ciliate, sulphur-yellow, covered with rather small irregularly scattered dark purple-brown spots, without intermingling lines, those on the paler annulus smaller than those on the lobes; *annulus* with a recurved-spreading acute margin; *lobes* about $\frac{1}{2}$ in. long, broadly ovate, acute;*Outer corona*: lobes $1\frac{1}{2}$ lin. long, $\frac{3}{4}$ to 1 lin. broad, oblong, emarginate or bifid, sometimes with a minute tooth at the base of the notch, very pale, greenish or greenish-yellow, with or without a central suffused and dotted stripe extending to about $\frac{2}{3}$ of the way up or some dots around the teeth;*Inner corona*: lobes 2-horned, pale yellow or greenish, with or without purple-brown dots; inner horn $1\frac{1}{2}$ to $1\frac{2}{3}$ lin. long, erect, recurving at the slightly clavate apex; outer horn ascending-spreading, half as long as the inner or shorter, subulate.*Type locality*: South Africa: without precise locality.*Distribution*: Unknown.

FIG. 669

Stapelia lepida Jacquin x 0.3

From Jacquin: Stapeliarum Descriptiones, 1806-19.

"The neat *Stapelia*" is an odd little plant, first raised in the Imperial Gardens at Schönbrunn about 1800 by Baron de Jac-

quin from seed which he received from Georg Scholl in South Africa. It has not been found in the wild state and its original

habitat is quite unknown. The stems are like those of *S. variegata*, but the 1½-inch flowers are much smaller and have a different look. The annulus is whitish, with red spots, the rest of the inner corolla surface sulphur-yellow covered with dark purple-brown spots and bands. Owing to the contrast in color between annulus and corolla-lobes, the plant is often popularly called *Stapelia bicolor*, but this name belongs properly to a hybrid in the relationship of *Stapelia mutabilis* and cannot at all be applied to *S. lepida*.

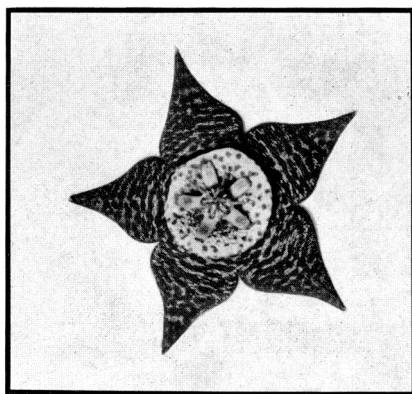


FIG. 670

Stapelia lepida Jacquin x 0.75

Figs. 670 and 671 probably represent flowers which are to be looked upon as hybrids.

FIG. 671

Stapelia lepida Jacquin

Photo by Miss J. J. E. van den Thoorn
of a four-lobed flower.

99. *Stapelia variegata* Linnaeus, Sp. Pl., 1 Ed., 217. 1753.

- Fritillaria crassa* van Stapel, Theophrast. Hist. Pl., 335. 1644.
Apocynum humile &c., Hermann, Hort. Acad. Lugd. Bat. Cat., 52. 1687.
Asclepias aizoides &c., Morison, Hist. Pl., iii. 611. 1699.
Apocynum fritillarium &c., Petiver, Gazophyl., Dec. ii. t. 4. 1709.
Crassa rivini Ruppius, Flor. Ien., 26. 1718.
Stisseria flore tessulato Heister, Index Pl. Hort. Acad. Iul., 29. 1730.
Stapelia denticulis &c., Linnaeus, Hort. Cliff., 77. 1737.
Stapelia normalis Jacquin, Stap., t. 42. 1806-19.
Orbea woodfordiana Haworth, Syn. Pl. Succ., 42. 1812.
Orbea variegata Haworth, Syn. Pl. Succ., 40. 1812.
Orbea normalis Schultes, Syst. Veg., vi. 834. 1820.
Stapelia woodfordiana Schultes, Syst. Veg., vi. 41. 1820.
Stapelia variegata var. *normalis* Berger, Stap. und Klein., 207. 1910.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 992):

- Plant:** glabrous in all parts, freely branching at the base; *stems* erect from a decumbent base, 2 to 6 in. long, 4 to 5 lin. (in some varieties and hybrids up to $\frac{1}{2}$ in.) square, very obtusely 4-angled, with conical acute spreading teeth, $1\frac{1}{2}$ to 2 lin. long, often having a minute tooth (stipule) on each side of the withering point, green, often mottled all over or tinted with purple at the tips;
- Flowers:** 1 to 5 together at the base of the young stems, developing successively;
- Pedicel:** 1 to $2\frac{1}{4}$ in. long, 1 to $1\frac{1}{2}$ lin. thick;
- Sepals:** $2\frac{1}{2}$ to 4 lin. long, ovate or ovate-lanceolate, acute or acuminate;
- Corolla:** 2 to 3 in. in diameter; *disk* with a pentagonal *annulus* $\frac{3}{4}$ to $\frac{7}{8}$ in. in diameter, having a recurved acute-edged rim; *lobes* $\frac{2}{3}$ to 1 in. long, $\frac{1}{2}$ to $\frac{7}{8}$ in. broad, ovate, acute or shortly acuminate, flat, radiately spreading or slightly recurved, 5 to 7 nerved; back smooth, green, suffused on the lobes and nerved with purplish; inner surface rugose with crowded irregular transverse ridges on the lobes and with small crowded granule-like tubercles on the annulus, otherwise glabrous and without a trace of minute ciliation on the lobes, pale greenish-yellow with dark purple-brown spots arranged in 6 to 7 longitudinal rows or sometimes irregularly scattered, besides a series along the margins, intermingled with slender lines of the same color, but not producing a dark effect on the basal part of the lobes, paler yellow with much smaller spots or dots of purple-brown on the annulus;
- Outer corona:** lobes ascending-spreading, 2 to $2\frac{3}{4}$ lin. long, linear-oblong, with parallel sides, minutely and obtusely 3-toothed at the apex, with the longer teeth not more than $\frac{1}{8}$ to $\frac{1}{6}$ of the length of the lobe, pale yellow, dotted or dusted with purple-brown and with a square spot of the same color at the base;
- Inner corona:** lobes 2-horned, pale yellow, dotted with purple-brown; horns filiform; inner horn about $1\frac{1}{2}$ lin. long, connivent-erect with recurved clavate and minutely tuberculate tips; outer horn suberect or ascending, straight, slightly clavate, rather shorter than or about as long as the inner.

Type locality: Cape Prov.: Cape Distr.: on Table Mountain.

Distribution (including the varieties): Cape Prov.: Steytlerville; Mossel Bay; Riversdale; Bredasdorp; Caledon; Robertson; Laingsburg; Worcester; Paarl; Piquetberg; Simonstown; and Cape districts.

The "variegated *Stapelia*" is the *enfant terrible* of the STAPELIEAE. It makes one imagine that the Goddess who presides over the Tribe, after she has led the student for a romp of 5,000 miles and through a maze of 350 species, which he has painfully

sought to clarify, wants to part from him at the end of the journey like the Will-o-the-wisp she really is, leaving him something to remember her by which shall be as intangible as her own charms. One could almost say that no one will ever write an account

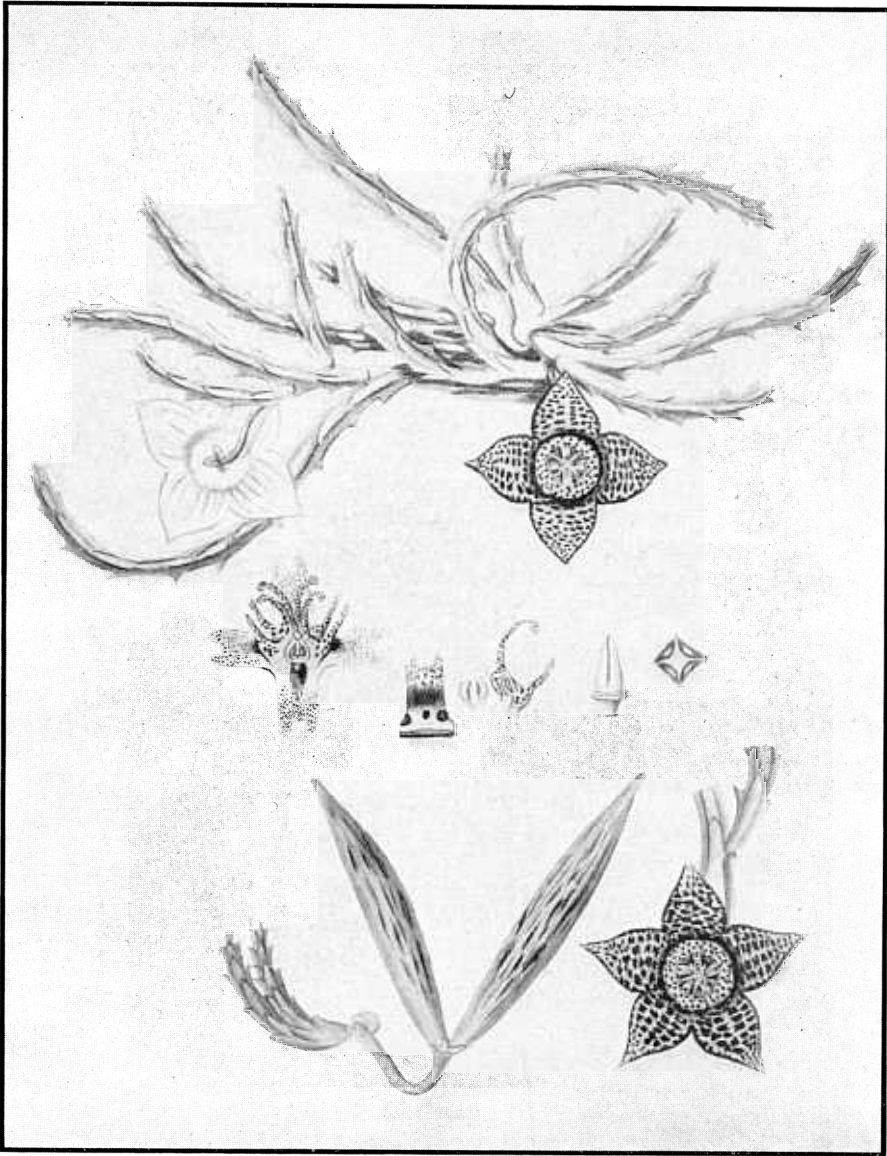


FIG. 672

Stapelia variegata Linnaeus x 0.4

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

of *Stapelia variegata* that will give others real help. Details of the flower upon which Linnaeus founded his type can be read in the admirable description by Dr. N. E. Brown just quoted above, but one should not expect often to find a flower which combines precisely these permutations of char-

acters. Dr. Brown himself told us the story that, wishing to see a living example of the Linnaean type flower, he asked Sir Henry Barkly to send him a plant from the type locality on Table Mountain near Cape-town; but when it arrived and flowered, lo! the outer corona-lobes had only two teeth,

not three, as there should have been. This showed that the different forms of the species were not localized races, but grew everywhere in bewildering confusion. Mr. Pillans gives one account of having found seventeen different Variegata flowers on Robben Island in Table Bay, within an area of 80 by 100 yards. The range of this protean species and its recognized varieties is believed to begin in one of the south-eastern divisions, perhaps near Port Elizabeth, which would be suggestively near to the habitats of *Stapelia verrucosa* and *S. pulchella*. It then passes westerly and a little northerly, rarely much over 75 miles inland, via Mossel Bay, Riversdale and Worcester, to the Piquetberg. At Worcester it also swings a little south of west to the Paarl, Lion Mountain and Table Mountain near Capetown, ending its journey on Cape Point, within gunshot of the Cape of Good Hope. This is the end of the voyage of the STAPELIEAE, which began perchance at Poona in British India.

At the Piquetberg, *S. variegata* is a near

neighbor of *S. revoluta*; and further north, in Little Namaqualand, occur two other species which doubtless belong somewhere in the pedigree, *S. barklyi* and *S. namaquensis*.

Nineteen of the modifications of *S. variegata* were selected by Dr. Brown as Varieties. Seventeen of these are native forms from the Cape Province, two of them being retained as distinct species by Alwin Berger, *mixta* and *horizontalis*. The two remaining varieties appear to be European hybrids. We have summed up in the Chart on p. 694 the characters of these 19 varieties and of the type, as given by Dr. Brown in the *Flora Capensis*. In addition we quote on p. 700 Dr. Brown's key to these varieties and to four other important hybrids. Beyond this we cite a list of all the varieties and hybrids, with their synonyms, but without descriptions. Our reason for omitting descriptions of these hybrids is that the forms are too unstable for accurate analysis. Even the primary varieties are unstable, where reproduced from seed. On one occasion we

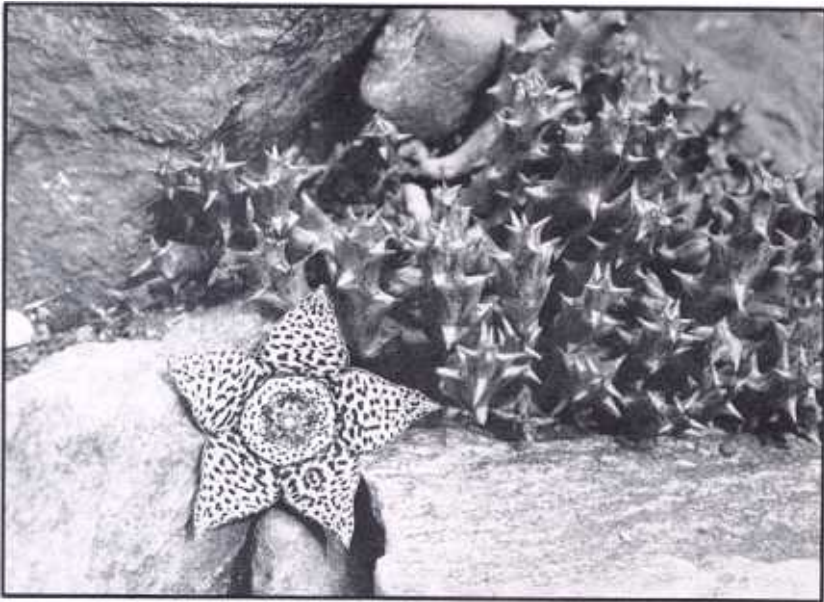


FIG. 673

Stapelia variegata x 0.5

From Matjesfontein, C. P. Photo: G. W. Reynolds, Johannesburg.

submitted Fig. 674 to Dr. Brown and he wrote us that he considered the right-hand flower most like the wild type around Capetown, the centre one as related to var. *trisulca* and the left-hand one as related to var. *bufonia*. Yet all three came from first-year plants grown at the Soldena Gardens in Pasadena from seed of a single parent plant. If even the primary varieties can be so modified in one generation, we can expect nothing but chaos from the secondary hybrids, nor shall we be disappointed in our expectation. These hybrids are in more or less constant transition from one set of characters to another. Yet they often present such beautiful forms and are always so easy to grow that it is hard not to fall under the spell of the pretty Latin names which accompany them. Dr. Rüst, one-time member of the Board of Health in Hanover, devoted the leisure of many years to their study and he classified the hybrids of around 1895 with extraordinary attention to detail. In 1896 he published in the *Monatsschrift für Kakteenkunde* a Key to the hybrids of both *S. variegata* and *S. mutabilis*, and in addition he compiled a manuscript Atlas containing drawings of

some 82 of these hybrids. This Atlas won a silver medal from the Prussian Society for Gardening. Dr. Rüst's names and those coined at different periods by other enthusiasts, notably by Prince Joseph von Salm-Dyck around 1835 and by Agostino Todaro of Palermo about 1860 to 1875, survive as names, but the years have passed, new vintages have come and gone, and today it is rare indeed to find any name which can be applied to any plant correctly, let alone its being the particular plant bought along with the label bearing the name. Of the hybrids we have examined, the only ones we have fitted to names are *S. hanburyana* (Fig. 707) and *S. lunata*, so-called for the little crescent markings on the wholly dark purple-brown inner surface of the corolla-lobes (Fig. 708, right).

James West once aptly pointed out that the collecting of succulents has always been more intimately associated with botany than other forms of horticulture and that there has resulted a tendency to Latinize every sort of name, irrespective of whether an actual species or only a garden hybrid was under consideration. In other fields, for instance in the case of roses, the less

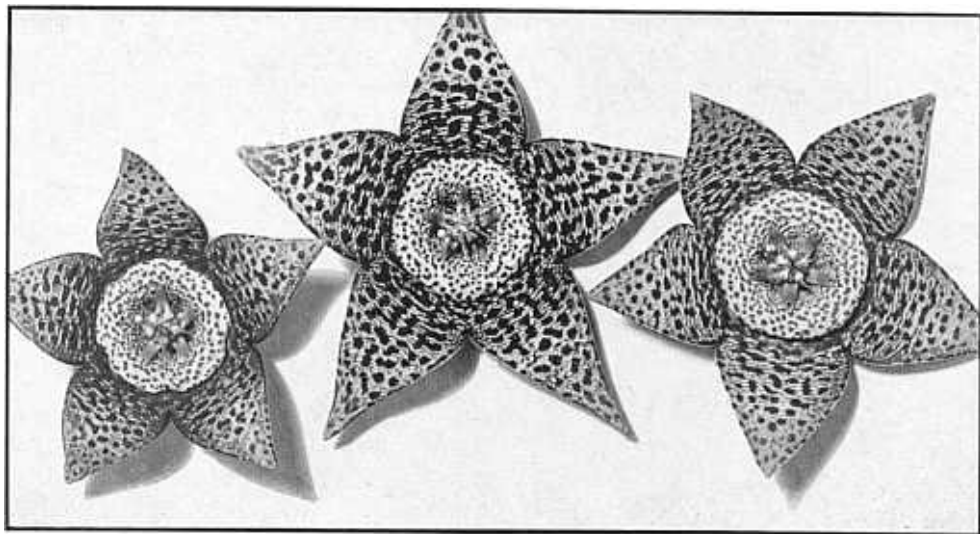


FIG. 674

Stapelia variegata flowers from a single parent x 0.75



FIG. 675

Tapering form of *Stapelia variegata* stems, commonly miscalled *S. bufonia* x 0.75

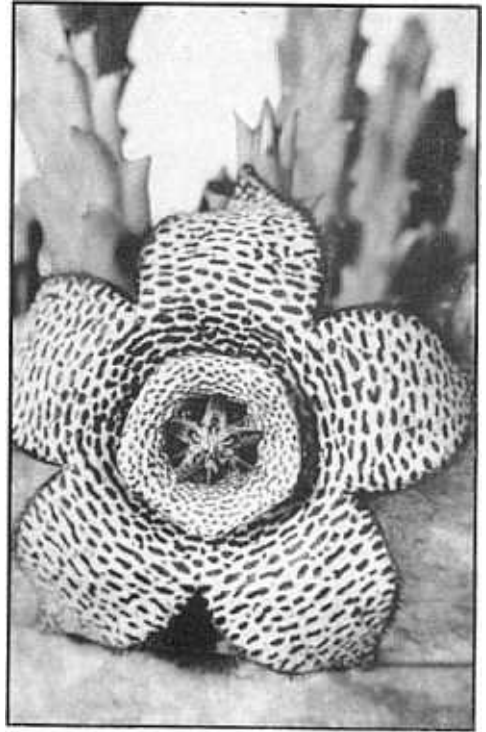


FIG. 676

Stapelia variegata hybrid x 1.

A curious form, with long dark red papillae at the bottom of the central depression. The lobes are ciliate with short vibratile clavate hairs. The spots on the disk are red, those on the lobes purple. The pentagonal annulus is brighter.

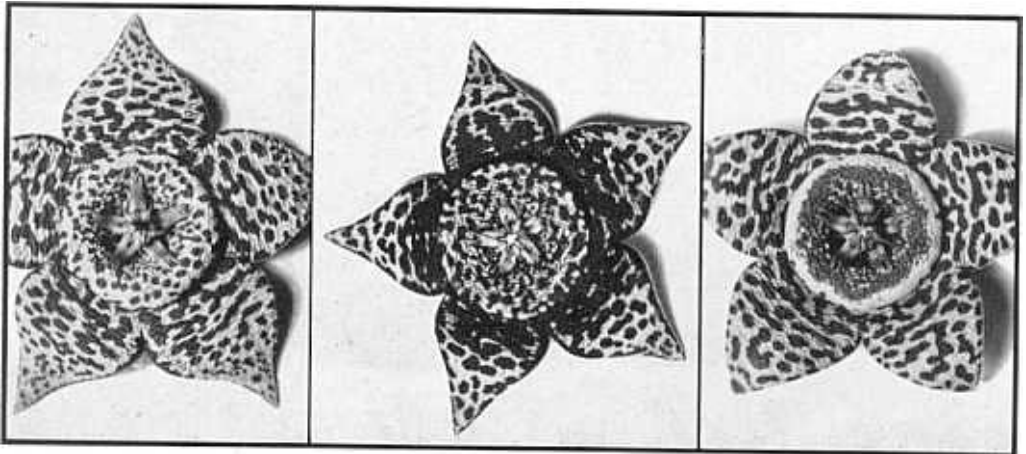


FIG. 677

Stapelia variegata hybrids x 0.75

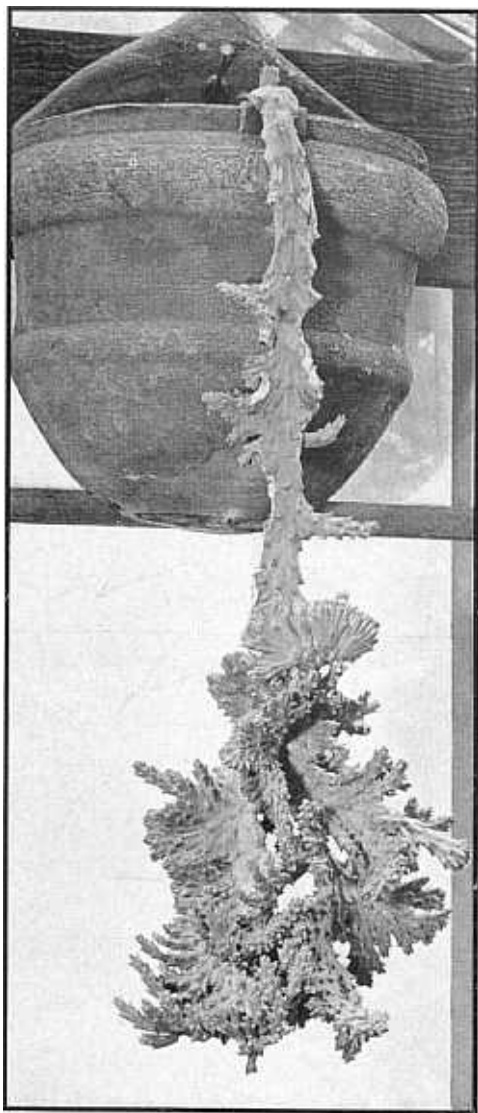


FIG. 678

Crested stem of *Stapelia variegata* x 0.25

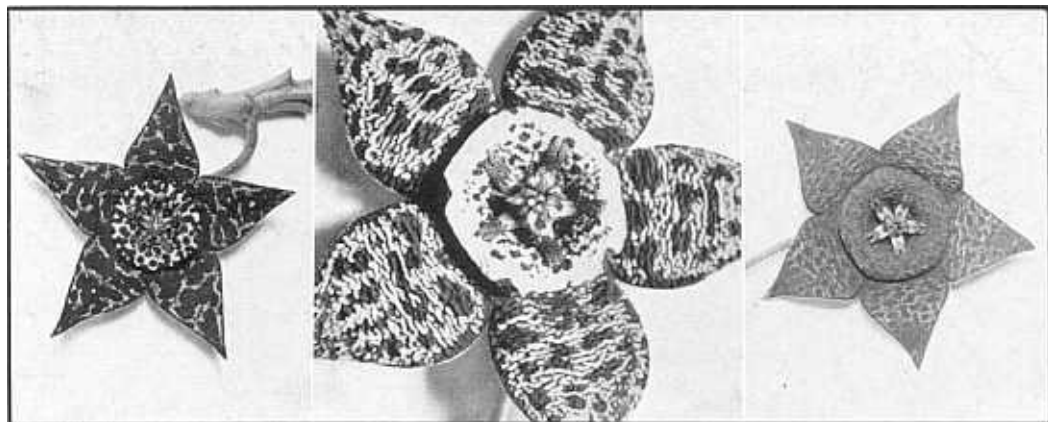
permanent hybrids are given only English names, indicating that they have no specific rank. If one could be satisfied in the same way to accept the Variegata hybrids, without insisting on their having Latin names, which can never endure scrutiny, one would find much of beauty and constant surprises in these forms which have never seen the South African sky. The arrangement of the markings, the size and shape of the lobes

and the color arrangement are so varied as to be intensely interesting. One flower, related to the var. *atropurpurea*, has deep purple-black lobes and annulus without markings and it is a very striking one (Fig. 682, right). Usually the foundation color is a cream or pale yellow, but occasionally there appears a flower of deep orange with markings of purplish-brown (Fig. 681, centre). Now and then a flower appears with red markings, though this is not common (Fig. 677, centre). There may be large spots on dark lobes combined with small spots on a lighter annulus (Fig. 681, left). One flower shows a ring of yellow on an annulus containing no spots whatever (Fig. 677, right). Another, with rather ordinary lobes, has an annulus on which a purple-red overlays the brown markings (Fig. 680, right). An odd flower is one which has dull black-brown mark-

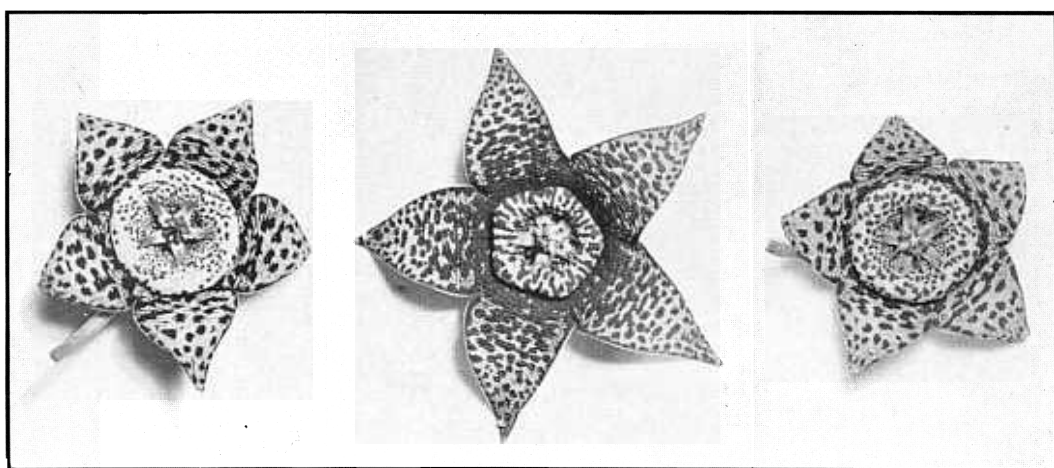


FIG. 679

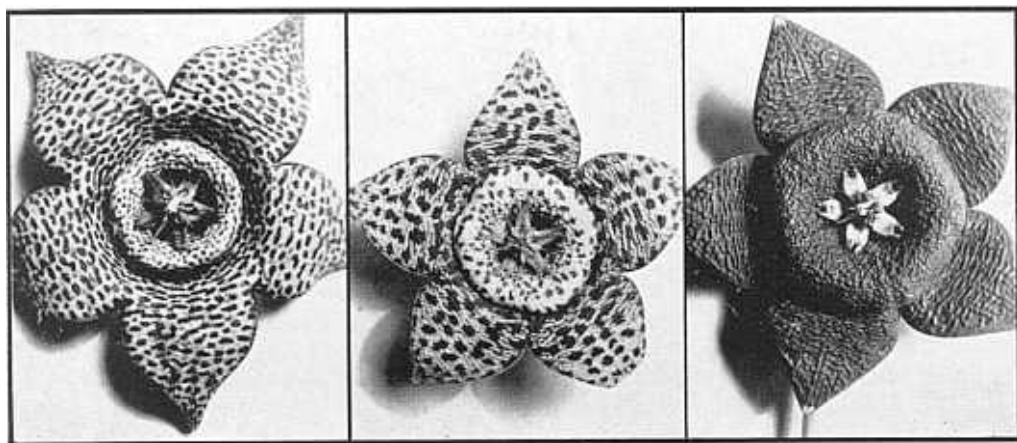
Stapelia variegata Linnaeus x
A freak double flower.



pelia. variegata. hybrids
right and left



variegata hybrids



Stapelia variegata hybrids

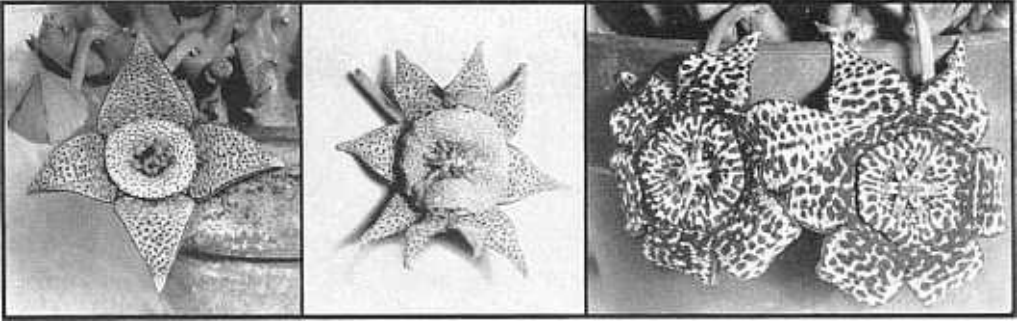


FIG. 683

Freak flowers of *Stapelia variegata*

ings of uniform size on both lobes and annulus (Fig. 683, right), and another is one in which the markings are very small spots with a solid line around the margins of the lobes (Fig. 683, left). So one might continue *ad infinitum*, for it would be difficult to find two plants of the Variegata hybrids

in which the flowers are identical.

Stapelia variegata does not limit its activities to hybridization. The stems crest quite easily and fanciful developments, like that shown in Fig. 678, are not uncommon and always arouse attention. Freak Variegata flowers also occur frequently.



KEY TO THE VARIETIES AND PRINCIPAL HYBRIDS OF STAPELIA VARIEGATA

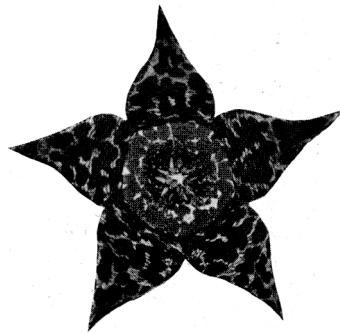
(Dr. N. E. Brown, Flora Cap., iv. i. 994: "All the forms enumerated in the key have the margin of the annulus very spreading or recurved, except *S. albicans*, in which it is only slightly recurved").

- I. Corolla entirely blackish-purple or very dark purple-brown with a few irregular transverse, winding or longitudinal yellowish lines and spots producing a somewhat marbled appearance:
 - A. Corolla $1\frac{3}{4}$ to 2 in. in diameter; inner corona-lobes with the outer horn not more than half as long as the inner (k) var. *marmorata*
 - B. Corolla $2\frac{1}{2}$ to $3\frac{1}{4}$ in. in diameter; inner corona-lobes with the outer horn nearly or quite as long as the inner:
 1. Corolla-lobes ovate; ground color blackish-purple (b) var. *atropurpurea*
 2. Corolla-lobes deltoid-acuminate; ground color dark purple-brown (a) var. *atrata*
- II. Corolla-lobes pale greenish-yellow with crowded transverse thin purple-brown lines (not spots) on the basal $\frac{1}{2}$ to $\frac{2}{3}$ and dots or small spots on the apical part; annulus paler with small spots, its rim flat-tish (see also var. *pallida*) (h) var. *horizontalis*
- III. Corolla 2 to $3\frac{3}{4}$ in. in diameter, pale yellow or greenish-yellow, brighter on the annulus, marked all over with dots or spots (sometimes confluent or connected by transverse thin lines) or long labyrinthine or short thick lines of purple-brown:
 - A. Inner corona-lobes with the outer horn half or less than half as long as the inner horn; corolla darkly marked with very confluent spots (c) var. *brevicornis*
 - B. Inner corona-lobes with the outer horn from more than half as long to as long as the inner horn:
 1. Corolla-lobes minutely but distinctly ciliate with rather thick or clavate fixed (not vibratile) hairs; spots on the annulus as small as or smaller than those on the lobes:
 - a. Teeth of the outer corona-lobes widely diverging:
 - i. Corolla about 2 in. in diameter; lower $\frac{2}{3}$ of lobes labyrinthinely marked with thick brownish-crimson lines broken up into spots towards the tips *S. divergens*
 - ii. Corolla $2\frac{1}{2}$ to 3 in. in diameter; lobes labyrinthinely marked with thick dark purple-brown lines and confluent spots; annulus pale yellow with light purple-brown dots *S. scutellata*
 - iii. Corolla $2\frac{1}{2}$ to 3 in. in diameter, spotted all over, with or without a few slender transverse lines interspersed on the base of the lobes (e) var. *clypeata*
 - b. Teeth of the outer corona-lobes not or but slightly diverging:
 - i. Rim of the annulus light yellow, without spots; corolla with 5 purple-brown rays on the disk extending to and beyond the sinuses (p) var. *prometheus*
 - ii. Rim of the annulus more or less spotted; corolla without colored rays on the disk:
 - + Corolla 2 to $2\frac{1}{2}$ in. in diameter; lobes marked with short thick transverse lines or elongated spots and small rounded spots:

- ◇ Margin of annulus very slightly recurved, not forming a flat-topped rim *S. albicans*
 - ◇◇ Margin of annulus horizontally spreading, forming a flat-topped rim *S. hanburyana*
 - ++ Corolla $2\frac{1}{2}$ to $3\frac{3}{4}$ in. in diameter, light colored; lobes with numerous rounded spots, those on the basal half connected by a network of slender transverse purple-brown lines (l) var. *mixta*
 - +++ Corolla about 2 in. in diameter, dark colored from the irregular spots being more or less confluent . . . (f) var. *conspicua*
- Corolla-lobes not ciliate or the cilia reduced to exceedingly minute and often papilla-like hairs, rarely more than twice as long as thick:
- a. Spots very numerous on each lobe, small or dot-like, those on the annulus more minute. (m) var. *pallida*
 - b. Spots on the lobes not dot-like:
 - i. Spots not numerous on each lobe, large, irregular or confluent, rich crimson-brown, brighter (nearly blood-color) and not smaller on the annulus:
 - + Corolla about 2 in. in diameter; outer corona-lobes deeply bifid, without a tooth in the notch . . . (n) var. *picta*
 - ++ Corolla $2\frac{1}{2}$ to 3 in. in diameter; outer corona-lobes 3-toothed at the apex (i) var. *laeta*
 - ii. Spots many on each lobe, of moderate size, distinct or but slightly confluent except on the basal part, irregularly scattered or in longitudinal rows, those on the annulus small or dot-like, all dark purple-brown, never crimson-brown or blood color:
 - + Base of the corolla-lobes more darkly colored than elsewhere from the spots being confluent, or very distinctly connected by or confluent with numerous transverse dark purple-brown lines:
 - ◇ Annulus with a flattish rim; corolla $2\frac{1}{2}$ to $3\frac{1}{2}$ in. in diameter:
 - * Annulus with 5 notches and 5 very broad crenations; outer corona-lobes equally 3-toothed at the apex (r) var. *rugosa*
 - ** Annulus pentagonal or 10-crenate; outer corona-lobes bifid with or without a small tooth in the notch (l) var. *mixta*
 - ◇◇ Annulus with a convex rim, not normally notched nor crenate; corolla $2\frac{1}{2}$ to 3 in. in diameter:
 - * Outer corona-lobes about 3 times as long as they are broad at the middle, tapering to the tips or with parallel sides, minutely notched, very shortly bifid or very minutely 3-toothed at the apex (q) var. *retusa*
 - ** Outer corona-lobes 2 to $2\frac{1}{2}$ times as long as they are broad at the middle, usually rather deeply bifid with parallel teeth and with or without a minute tooth in the notch:

Stapelia variegata

- △ Corolla in mature (not young) bud flat-topped, without a point, when expanded flat on the back of the disk (s) var. *trisulca*
- △△ Corolla in mature bud conical, acute, when expanded not quite flat on the back of the disk (d) var. *bufonia*
- ++ Base of the corolla-lobes not or scarcely more darkly colored than elsewhere; spots separate or not very conspicuously connected by slender purple-brown lines:
 - ◇ Outer corona-lobes not much longer than broad, shortly bifid (j) var. *marginata*
 - ◇◇ Outer corona-lobes 2 to 3 times as long as broad:
 - * Expanded corolla quite flat on the back of the disk; outer corona-lobes bifid, with parallel obtuse teeth (o) var. *planiflora*
 - ** Expanded corolla more or less convex on the back of the disk:
 - △ Outer corona-lobes bifid from $\frac{1}{3}$ to more than halfway down, with diverging or subparallel teeth and with or without a minute tooth in the notch (e) var. *clypeata*
 - △△ Outer corona-lobes minutely 3-toothed at the apex, with the middle tooth shortest, all obtuse and not more than $\frac{1}{8}$ to $\frac{1}{6}$ of the length of the lobe; ground color of corolla lemon or faintly greenish-yellow (20) *S. variegata*
 - △△△ Outer corona-lobes very slightly notched or very minutely and equally 3-toothed at the apex; ground color of corolla light yellow or rather bright sulphur-yellow (g) var. *curtisii*



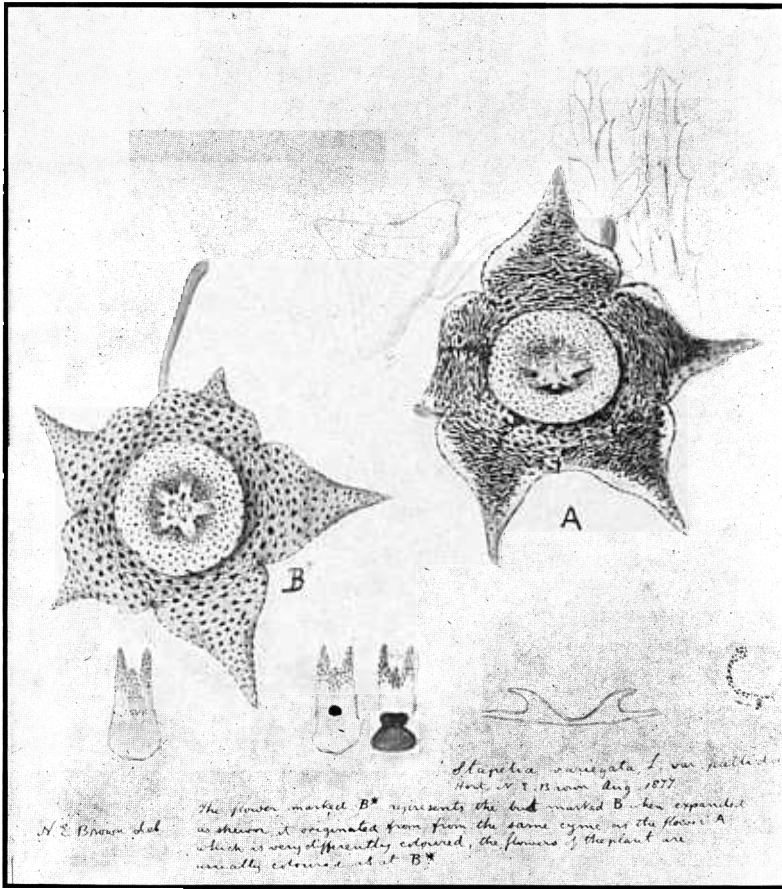


FIG. 684

Stapelia variegata var. *pallida* N. E. Brown x 1.

Drawing by N. E. Brown, 1877. Reproduced by permission of the Bentham Trustees. "The flower marked B originated from the same cyme as the flower A, which is very differently colored."

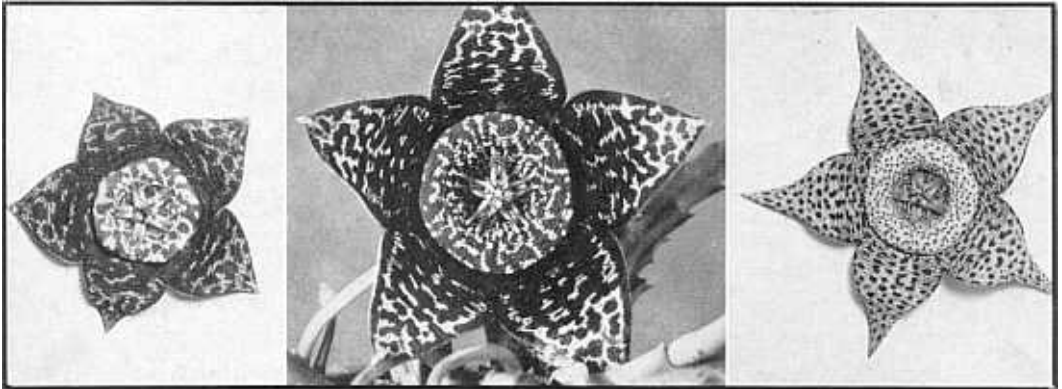


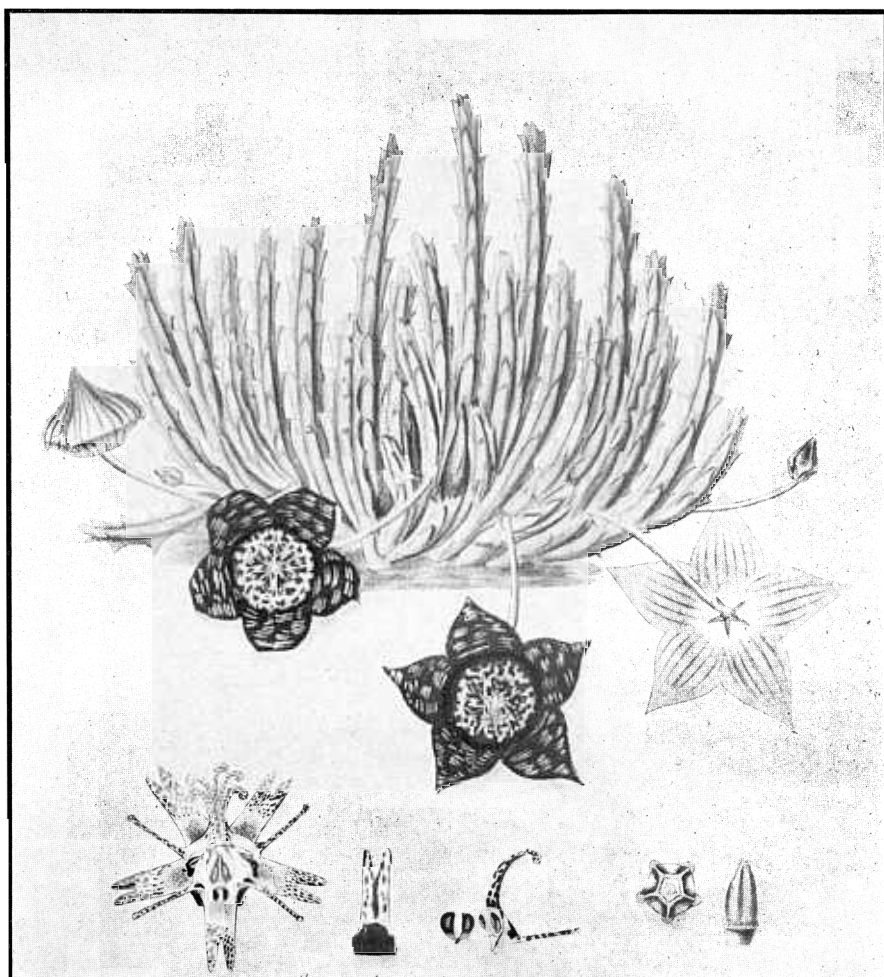
FIG. 685

Stapelia variegata varieties

Left: var. *laeta* N. E. Brown

Centre: var. *picta* N. E. Brown

Right: var. *trisulca* N. E. Brown



200 1 2

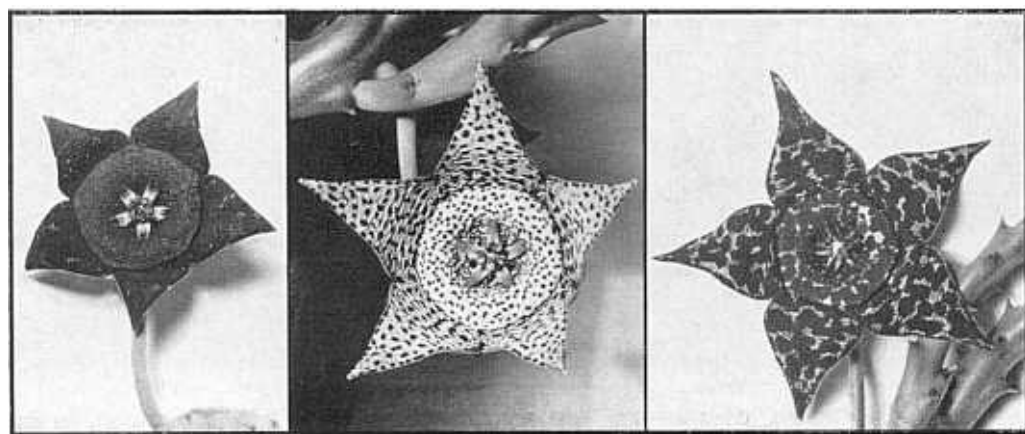


FIG. 687. *Strobilium variagata* varieties. All $\times 0.75$.

Dr. N. E. Brown's varieties of STAPELIA VARIEGATA, and their synonyms.

Var. a. *S. variegata* var. *atrata* (Todaro) N. E. Brown, *Flora Cap.*, iv. i. 1006 1909.

S. atrata Todaro, *Hort. Panorm.*, i. 50. 1876-78.

(Origin: A hybrid from the Botanical Gardens in Ferrara, Italy).

Var. b. *S. variegata* var. *atropurpurea* (Salm-Dyck) N. E. Brown, *Flora Cap.*, iv. i. 1005. 1909.

S. atropurpurea Salm-Dyck, *Hort. Dyck.*, 372. 1834.

S. marmorata Hulle, *Rev. Hort. Belg.*, 193. 1889. *Nec* Jacquin, 1806-19.

(Type locality: Cape Prov.: Cape Distr: north shore of Robben Island).

Var. c. *S. variegata* var. *brevicornis* N. E. Brown, *Flora Cap.*, iv. 100. 1909.

(Type locality: Cape Prov.: without precise locality).

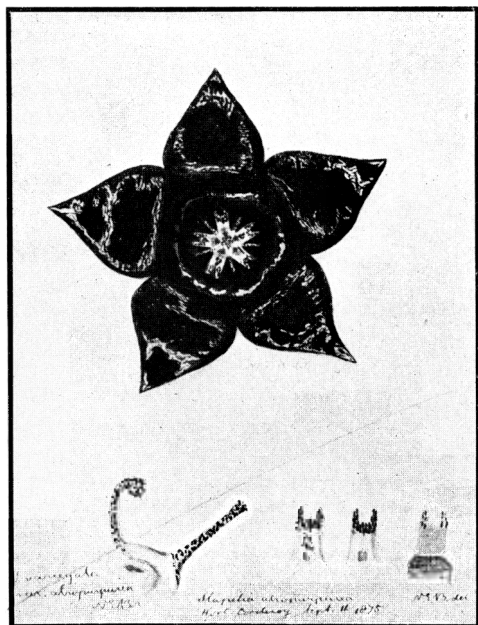


FIG. 688

Stapelia variegata var. *atropurpurea* N. E. Brown
x 0.6

Drawing by N. E. Brown, 1875. Reproduced by
permission of the Bentham Trustees.

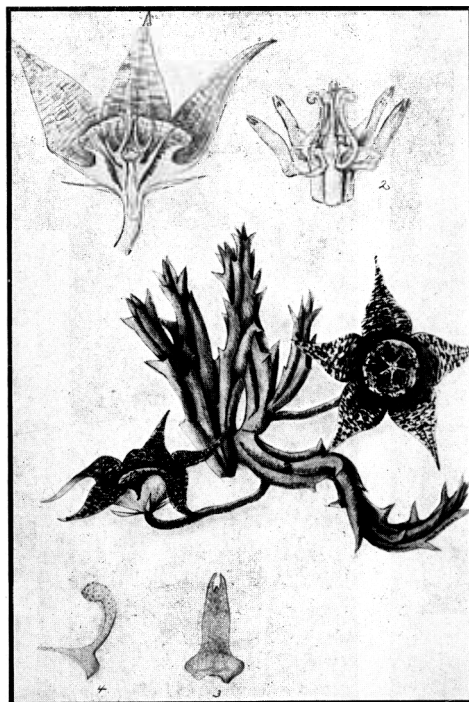


FIG. 689

Stapelia variegata var. *brevicornis* N. E. Brown
x 0.5

From the original water color drawing by B. Baden-
horst for the Flowering Plants of South Africa, 1927.



FIG. 690

Stapelia variegata var. *curtisii* N. E. Brown x 0.75

From a drawing by James Sowerby, in Curtis's Botanical Magazine, 1787.



FIG. 691

Stapelia variegata var. *horizontalis* N. E. Brown x 0.5

Drawing by N. E. Brown. Reproduced by permission of the Bentham Trustees.

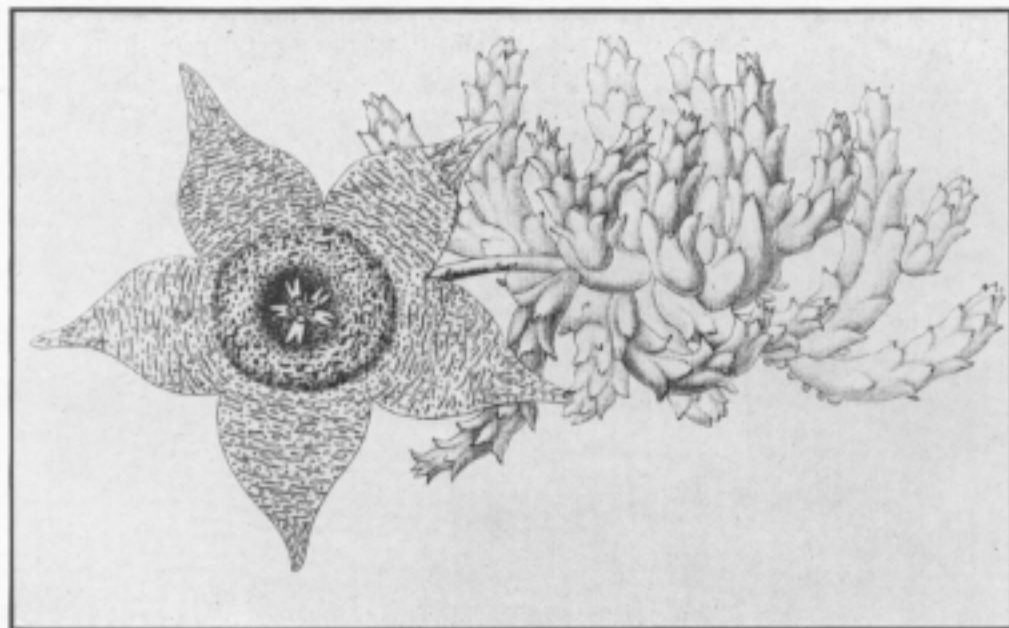


FIG. 692

Stapelia variegata var. *mixta* N. E. Brown x 1.

From Masson: *Stapeliae Novae*, 1796.

Var. d. *S. variegata* var. *bufonia* (J. Donn) N. E. Brown, *Flora Cap.*, iv. i. 998. 1909.

- S. bufonia* J. Donn, *Hort. Cantab.*, 3 Ed., 43. 1804.
- S. bisulca* J. Donn, *Hort. Cantab.*, 3 Ed., 43. 1804.
- S. orbiculata* J. Donn, *Hort. Cantab.*, 3 Ed., 43. 1804.
- S. ophiuncula* Haworth, *Syn. Pl. Succ.*, 27. 1812.
- Orbea bisulca* Haworth, *Syn. Pl. Succ.*, 39. 1812.
- Orbea bufonia* Haworth, *Syn. Pl. Succ.*, 40. 1812.
- S. buffonis* Loddiges, *Bot. Cab.*, t. 332. 1819.
- ? *S. bifolia* Schultes, *Syst. Veg.*, vi. 49. 1820.
- S. beffoniana* Schultes, *Syst. Veg.*, vi. 49. 1820.
- S. orbicularis* Loddiges, *Bot. Cab.*, t. 811. 1824.
- S. bidentata* Salm-Dyck, *Hort. Dyck.*, 266. 1834.
- S. buffoniana* G. Don, *Gen. Hist.*, iv. 117. 1838.
- S. monstrosa* Steudel, *Nom. Bot.*, 2 Ed., ii. 631. 1841.
- S. ciliolulata* Todaro, ex Rüst: *Monatsschr. Kakt.*, vi. 38. 1896.
- S. ophioncola* Schlechter, *Journ. Bot.*, 482. 1898.

(Type locality: Cape Prov.: Cape Distr.: Table Mountain)

Var. e. *S. variegata* var. *clypeata* (J. Donn) N. E. Brown, *Flora Cap.*, iv. i. 1000. 1909.

- S. clypeata* J. Donn, *Hort. Cantab.*, 3 Ed., 43. 1804.
- S. variegata* Jacquin, *Stap.*, t. 39. 1806-19. *Nec* Linnaeus, 1753.
- Orbea quinquenervia* Haworth, *Syn. Pl. Succ.*, 38. 1812.
- S. bufonis* Sims, *Bot. Mag.*, t. 1676. 1814.
- Orbea clypeata* Haworth, *Suppl. Pl. Succ.*, 13. 1819.
- S. quinquenervis* Schultes, *Syst. Veg.*, vi. 37. 1820.
- Orbea quinquenervis* Loudon, *Hort. Brit.*, 97. 1830.

(Type locality: Cape Prov.: Cape Distr.: Lion Mountain and Table Mountain)

Var. f. *S. variegata* var. *conspurcata* (Willdenow) N. E. Brown, *Flora Cap.*, iv. i. 1003. 1909.

- S. conspurcata* Willdenow, *Enum. Pl. Hort. Berol.*, 284. 1809.
- S. obliqua* Willdenow, *Enum. Pl. Hort. Berol.*, *Suppl.*, 13. 1813.
- Orbea conspurcata* Schultes, *Syst. Veg.*, vi. 834. 1820.
- Tromotriche obliqua* Sweet, *Hort. Brit.*, 1 Ed., 278. 1827.
- S. ciliolata* Todaro, *Ind. Sem. Hort. Panorm.*, 10. 1861.

(Type locality: Cape Prov.: Cape Distr.: Table Mountain).

Var. g. *S. variegata* var. *curtisii* (Haworth) N. E. Brown, *Icon. Pl.*, sub 1907. 1890.

- S. variegata* Curtis, *Bot. Mag.*, t. 26. 1787. *Nec* Linnaeus, 1753.
- Orbea curtisii* Haworth, *Syn. Pl. Succ.*, 40. 1812.
- Orbea inodora* Haworth, *Suppl. Pl. Succ.*, 12. 1819.
- S. curtisii* Schultes, *Syst. Veg.*, vi. 38. 1820.
- S. inodora* Decaisne, de Candolle: *Prodrom.*, viii. 61. 1844.

(Type locality: Cape Prov.: without locality, probably near Capetown)

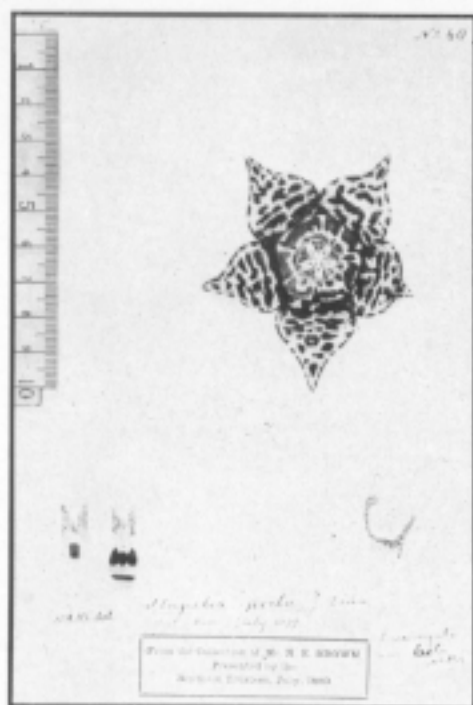


FIG. 693

Stapelia variegata var. *laeta* N. E. Brown x 0.6
Drawing by N. E. Brown, 1877. Reproduced by permission of the Bentham Trustees.



FIG. 694

Stapelia variegata var. *horizontalis* N. E. Brown x 1.

From Hooker's *Icones Plantarum*, 1890.

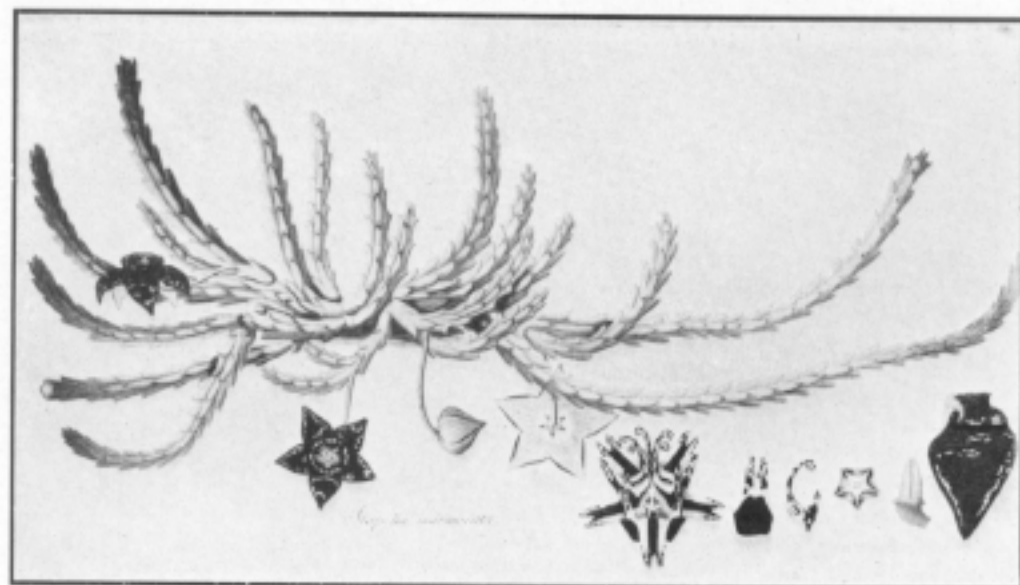


FIG. 695

Stapelia variegata var. *marmorata* N. E. Brown x 0.25

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

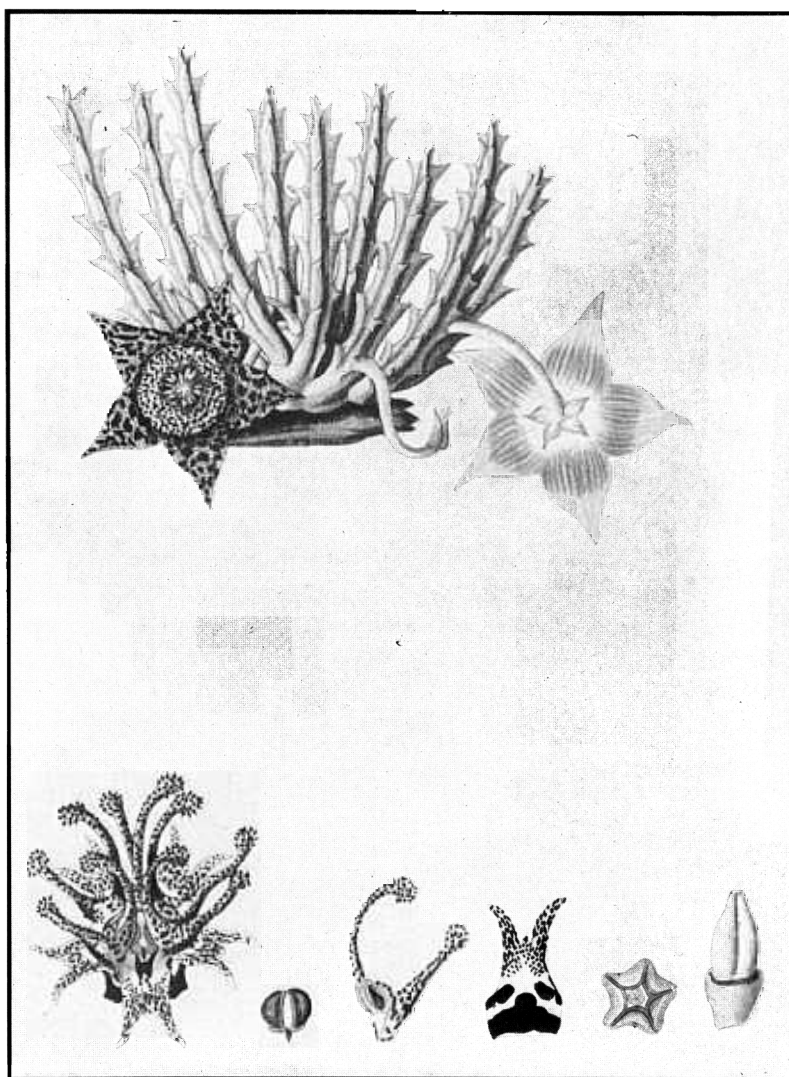


FIG. 696

Stapelia variegata var. *clypeata* N. E. Brown

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

Var. h. *S. variegata* var. *horizontalis* (N. E. Brown) N. E. Brown, *Flora Cap.*, iv. i. 1001. 1909.

S. horizontalis N. E. Brown, *Icon. Pl.*, t. 1907. 1890.

(Type locality: Cape Prov.: without locality, perhaps from Somerset East Div.)

Var. i. *S. variegata* var. *laeta* N. E. Brown, *Flora Cap.*, iv. i. 1004. 1909.

S. picta N. E. Brown, *Icon. Pl.*, sub. t. 1907. 1890. *Nec* J. Donn., 1804.

(Type locality: Cape Prov.: without locality, cultivated in Capetown Botanic Garden).

Var. *S. variegata* var. *marginata* (Willdenow) N. E. Brown, *Flora Cap.*, iv. i. 998. 1909.

S. planiflora var. *marginata* Willdenow, *Enum. Pl. Hort. Berol.*, 284. 1809.

S. marginata Willdenow, *Enum. Pl. Hort. Berol.*, Suppl., 13. 1813.

Orbea marginata Schultes, *Syst. Veg.*, vi. 834. 1820.

Orbea planiflora var. *marginata* G. Don, *Gen. Hist.*, iv. 120. 1838.

(Type locality: Cape Prov.: without precise locality).

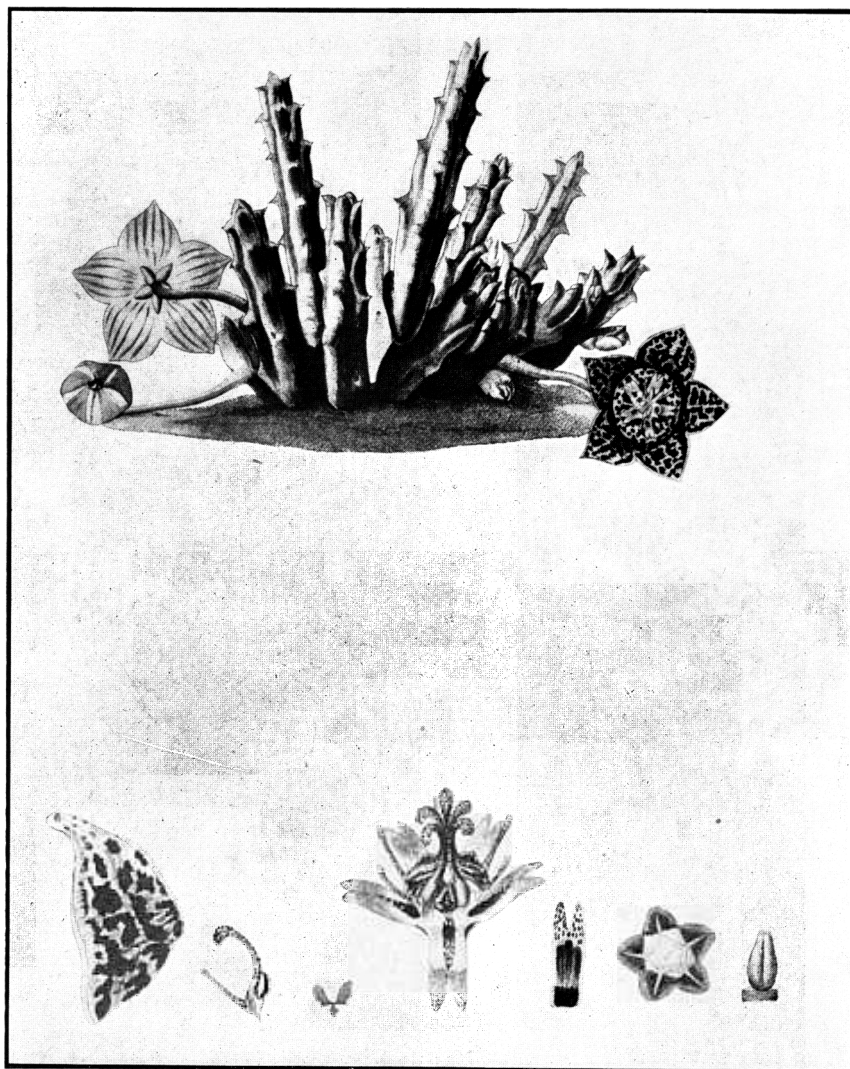


FIG. 697

Stapelia variegata var. *conspurcata* N. E. Brown x 0.6

From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

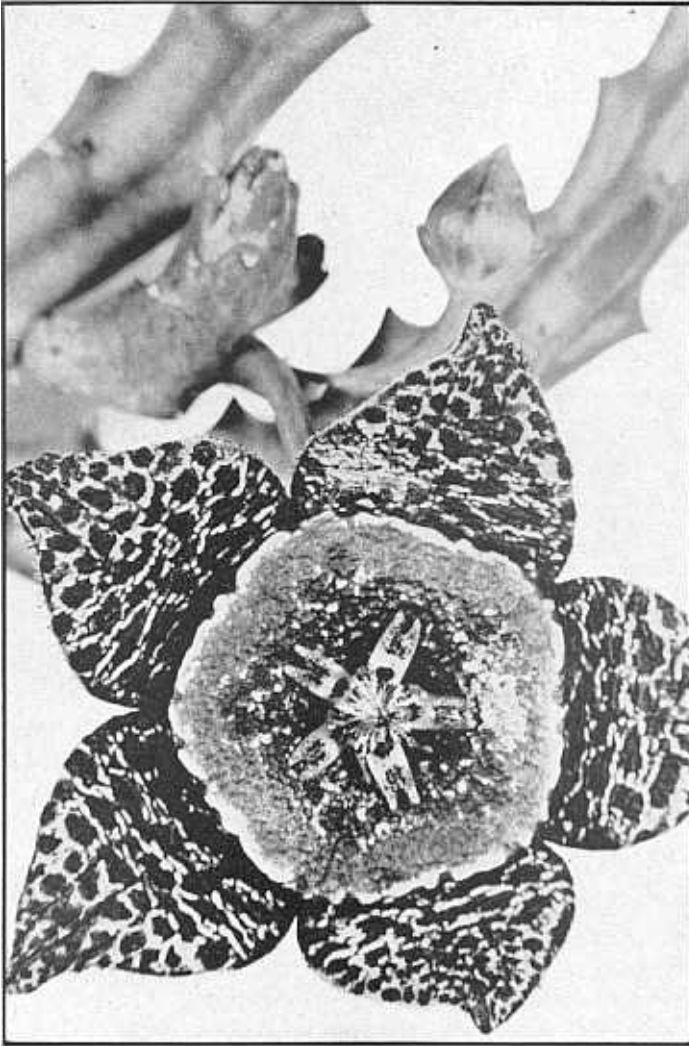


FIG. 698

A curious hybrid of *Stapelia variegata*, possibly related to the var. *conspurcata* N. E. Brown x 1.5

The corolla-lobes are shortly ciliate, deep reddish-purple with reddish spots.

Var. k. *S. variegata* var. *marmorata* (Jacquin) N. E. Brown, *Flora Cap.*, iv. i. 1004. 1909.

S. marmorata Jacquin, *Stap.*, t. 38. 1806-19.

Orbea marmorata Schultes, *Syst. Veg.*, vi. 834. 1820.

(Type locality: Cape Prov.: without precise locality).

Var. l. *S. variegata* var. *mixta* (Masson) N. E. Brown, *Flora Cap.*, iv. i. 1000. 1909.

S. mixta Masson, *Stap. Nov.*, 23. 1796.

Orbea mixta Haworth, *Syn. Pl. Succ.*, 38. 1812.

(Distribution: Cape Prov.: Robertson Distr.).

Var. m. *S. variegata* var. *pallida* N. E. Brown, Icon. Pl., sub. t. 1907. 1890.

(Origin: Cape Prov.: cultivated in Port Elizabeth Botanic Garden, and believed to have come from an eastern province; known also from Table Mountain).

Var. n. *S. variegata* var. *picta* (J. Donn) N. E. Brown, Flora Cap., iv. i. 1004 1909.

S. picta J. Donn, Hort. Cantab., 3 Ed., 43. 1804.

S. anguinea Jacquin, Stap., t. 38. 1806-19.

Orbea anguinea Haworth, Syn. Pl. Succ., 41. 1812.

Orbea picta Haworth, Syn. Pl. Succ., 42. 1812.

(Type locality: Cape Prov.: without precise locality).

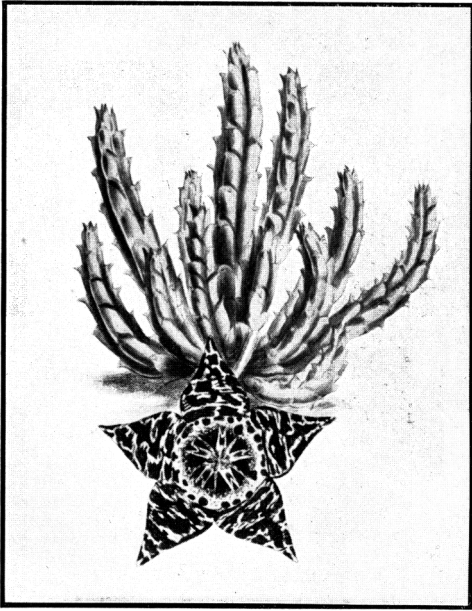


FIG. 699

Stapelia variegata var. *picta* N. E. Brown x 0.75
From Curtis's Botanical Magazine, 1809.

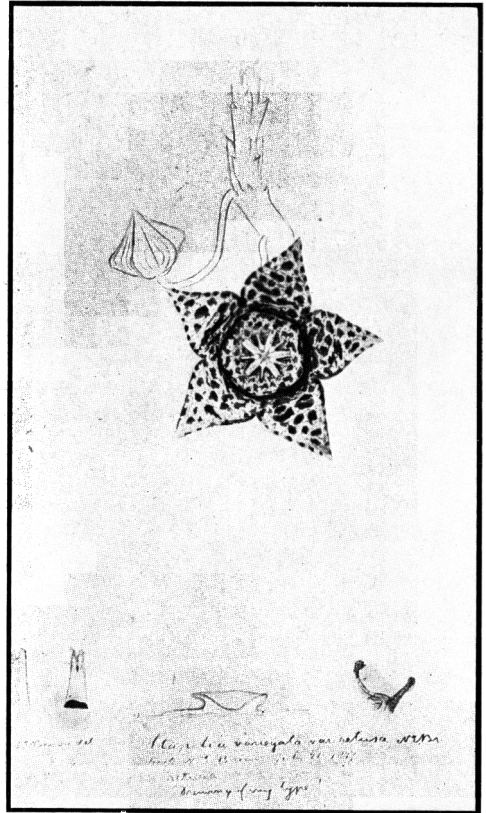


FIG. 700

Stapelia variegata var. *retusa* N. E. Brown x 0.5

Drawing by N. E. Brown, 1877. Reproduced by permission of the Bentham Trustee

Var. o. *S. variegata* var. *planiflora* (Jacquin) N. E. Brown, Flora Cap., iv. i. 998. 1909.

S. variegata Jacquin, Misc. Aust., i. t. 4. 1778 *Nec* Linnaeus, 1753.

S. planiflora Jacquin, Stap., t. 40. 1806-19.

Orbea planiflora Haworth, Suppl. Pl. Succ., 12. 1819.

S. mutabilis Hulle, Rev. Hort. Belg., 193. 1889. *Nec* Jacquin, 1806-19.

(Type locality: Cape Prov.: Cape Distr.: Table Mountain)

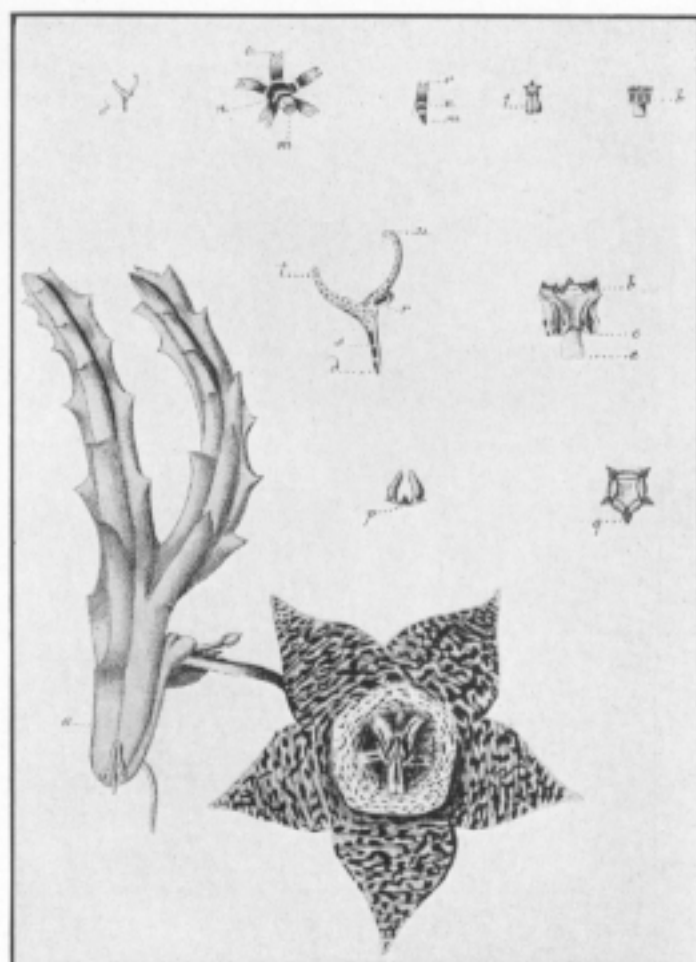


FIG. 701

Stapelia variegata var. *planiflora* N. E. Brown
From Jacquin: *Miscell. Austr.*, 1778.

Var. p. *S. variegata* var. *prometheus* Dammann, Rüst: *Monatsschr. Kakt.*, vi. 37. 1896.

S. prometheus Berger, *Stap. und Klein.*, 196. 1910.

(Hybrid origin).

Var. q. *S. variegata* var. *retusa* (Haworth) N. E. Brown, *Flora Cap.*, iv. i. 1003. 1909.

Orbea retusa Haworth, *Syn. Pl. Succ.*, 41. 1812.

S. retusa Schultes, *Syst. Veg.*, vi. 41. 1820.

(Origin unknown).

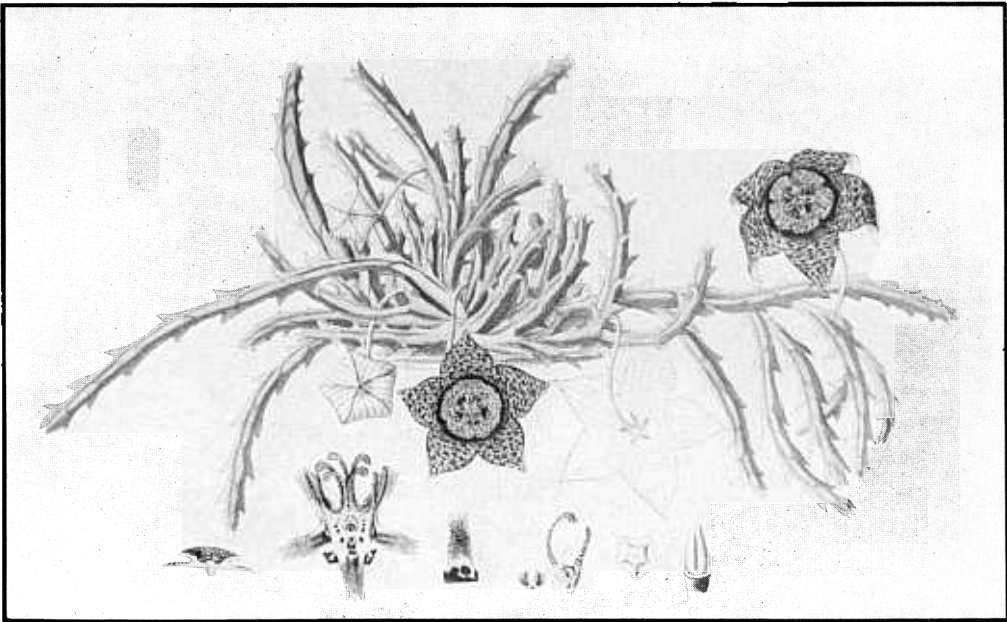


FIG. 702

Stapelia variegata var. *rugosa* N. E. Brown x 0.3
From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

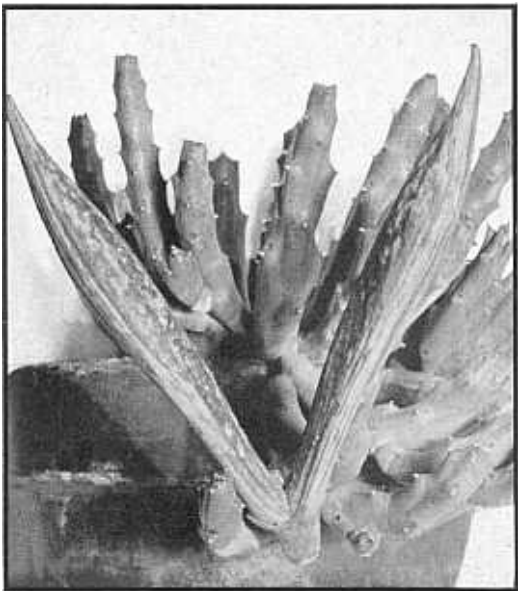


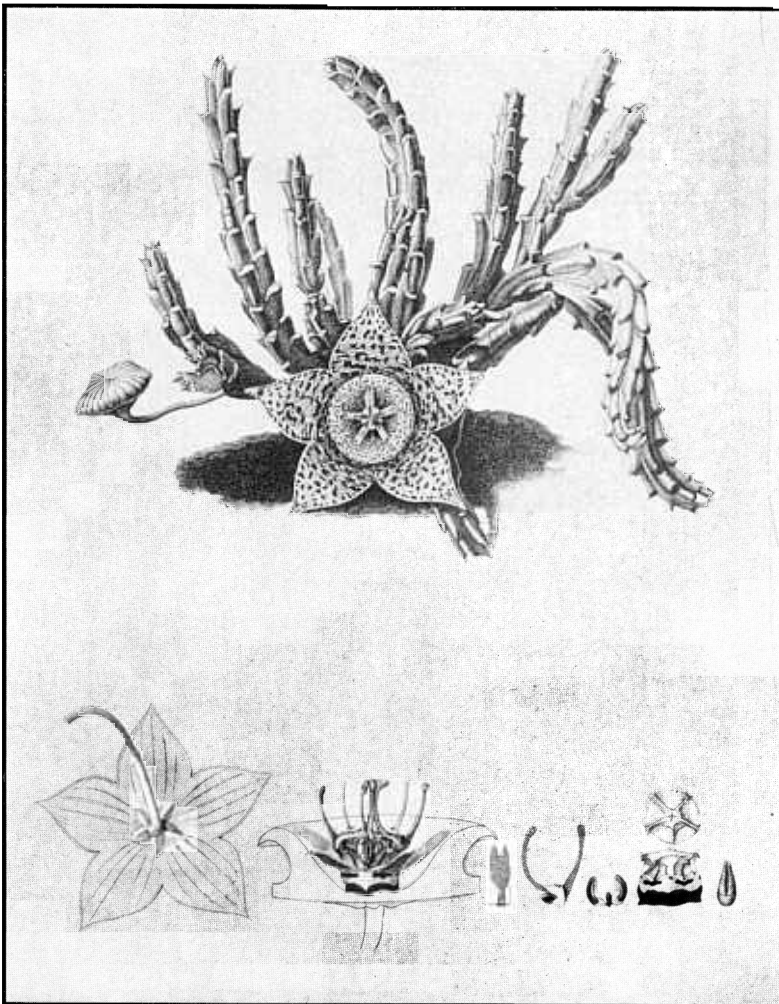
FIG. 703

Seed-pods of *Stapelia variegata* x 0.4

Stapelia varie

Var. r. ***S. variegata* var. *rugosa* (J. Donn) N. E. Brown** *Flora Cap.*, iv 1001 1909.
S. rugosa J. Donn, Hort. Cantab., 3 Ed., 43. 180
Tridentea rugosa Schultes, Syst. Veg., vi. 850. 18
Orbea rugosa Sweet, Hort. Brit., 1 Ed., 277. 182
 (Origin unknown, supposed to be from South Africa)

Var. s ***S. variegata* var. *trisulca* (J. Donn) N. E. Brown** *Flora Cap.* 99 1909.
S. trisulca J. Donn, Hort. Cantab., 3 Ed., 43. 1804.
Orbea trisulca Haworth, Syn. Pl. Succ., 39. 1812.
S. normalis Lindley, Bot. Reg., t. 755. 1823. *Nec* Jacquin, 1806-19.
 'type locality: Cape Prov.: Cape Distr.: near (Cape town)



FIG

Stapelia variegata var. *trisulca* N. E. Brown x
 From Jacquin: *Stapeliarum Descriptiones*, 1806-1

List of Named Hybrids of STAPELIA VARIEGATA and their Synonyms.

Stapelia albicans Sprenger, Dammann: Cat., 58. 1894.

?*Stapelia alba* Rother, Monatsschr. Kakt., v. 13. 1895.

Stapelia amoena Rüst, Monatsschr. Kakt., vi. 40. 1896.

Stapelia angulosa Todaro, Rüst: Monatsschr. Kakt., vi. 38. 1896.

Stapelia atropurpurea Rüst, Monatsschr. Kakt., vi. 40. 1896.

Stapelia bellona (Dammann) Berger, Stap. und Klein., 197. 1910.

Stapelia discolor var. *bellona* Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.

Stapelia bisulca Rüst, Monatsschr. Kakt., vi. 39. 1896. Nec J. Donn, 1804.

Stapelia bisulca var. *proboscidea* Rüst, Monatsschr. Kakt., vi. 39. 1896.

Stapelia burtinii Rüst, Monatsschr. Kakt., vi. 40. 1896.

Stapelia calycina Rüst, Atlas MS.

Stapelia capelleana Rüst, Atlas MS.

Stapelia charybdis (Dammann) Berger, Stap. und Klein., 221. 1910.

Stapelia angulosa var. *charybdis* Dammann, Rüst: Monatsschr. Kakt., vi. 40. 1896.

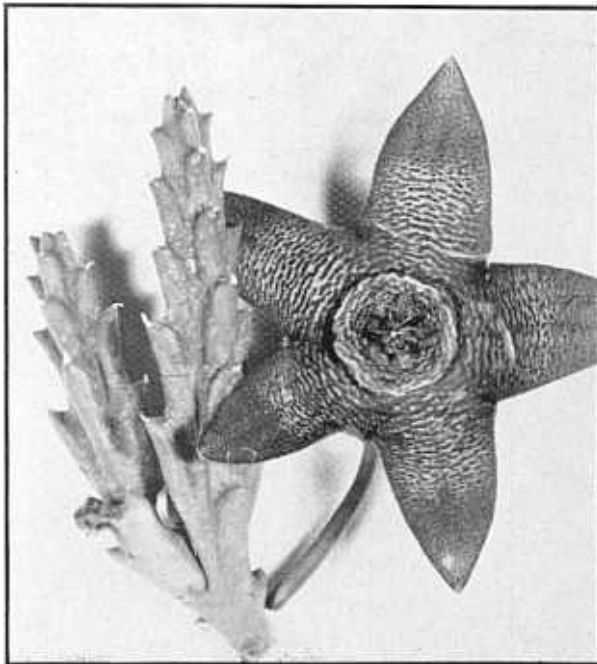


FIG. 705

An unusual *Orbea* hybrid. The outer corona-lobes are noteworthy, the middle tooth being longer than the lateral teeth.

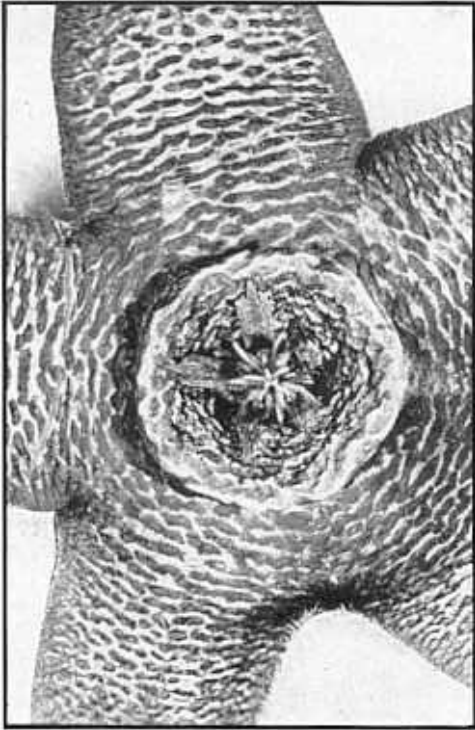


FIG. 706

Enlargement, showing the corona of the hybrid of Fig. 705

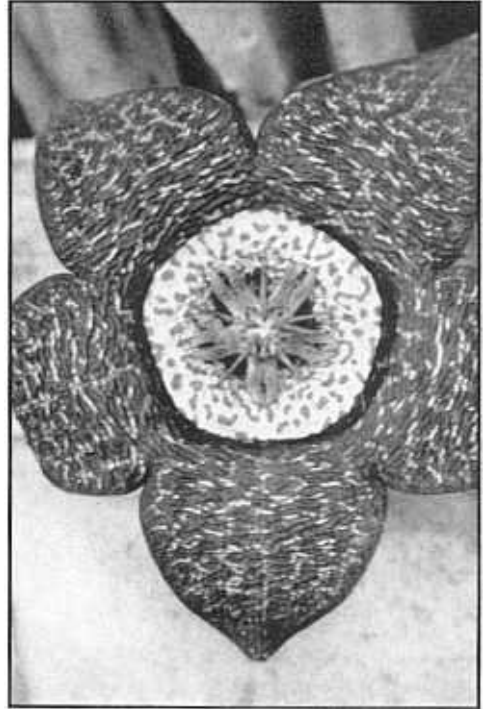


FIG. 707

Stapelia hanburyana Berger et Rüst x 1.4

The $2\frac{1}{2}$ inch corolla has pale greenish-yellow lobes, edged and uniformly spotted and banded in purple-brown, the tips darker; a whitish-yellow annulus, much paler than the lobes, with small purple-brown spots, often confluent; and a minute ciliation of subclavate hairs on the lobes.

Stapelia chlorotica Rüst, Monatsschr. Kakt., vi. 43. 1896.

Stapelia circe (Dammann) Berger, Stap. und Klein., 222. 1910.

Stapelia mutabilis var. *circe* Dammann, Rüst: Monatsschr. Kakt., vi. 37. 1896.

Stapelia curtisii Rüst, Monatsschr. Kakt., vi. 38. 1896. Nec Schultes, 1820.

Stapelia decora Rüst, Monatsschr. Kakt., vi. 40. 1896. Nec Masson, 1796.

Stapelia dentata Rüst, Atlas MS. Nec Forskal, 1775.

Stapelia depilata Rüst, Atlas MS.

Stapelia discolor Rüst, Monatsschr. Kakt., vi. 37. 1896. Nec Todaro, 1876-78.

Stapelia divergens N. E. Brown, Gard. Chron., xxxvii. 49. 1905.

Stapelia electra (Dammann) Berger, Stap. und Klein., 197. 1910.

Stapelia discolor (Rüst) var. *electra* Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.

Stapelia erecta Rüst, Monatsschr. Kakt., vi. 40. 1896.

Stapelia gemmifera Salm-Dyck, Hort. Dyck., 266. 1834.

Stapelia hanburyana Berger et Rüst, Monatsschr. Kakt., ix. 6. 1899.

Stapelia hispida Horn, Rüst: Monatsschr. Kakt., vi. 37. 1896.

Stapelia inflexa Rüst, Atlas MS.

Stapelia kreusa (Dammann) Berger, Stap. und Klein., 197. 1910.

Stapelia angulosa var. *kreusa* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.

Stapelia lunata Dammann, Rüst: Monatsschr. Kakt., vi. 43. 1896.

Stapelia lunata var. *minor* Rüst, Monatsschr. Kakt., vi. 43. 1896.

Stapelia lunata var. *umbrosa* Rüst, Monatsschr. Kakt., vi. 43. 1896.

Stapelia luxurians Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.

Stapelia marginata Rüst, Monatsschr. Kakt., vi. 37. 1896. Nec Willdenow, 1806.

Stapelia marmorata Rüst, Monatsschr. Kakt., vi. 38. 1896. Nec Jacquin, 1806-19.

Stapelia medusa (Dammann) Berger, Stap. und Klein., 197. 1910.

Stapelia discolor var. *medusa* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.

Stapelia megara (Dammann) Berger, Stap. und Klein., 223. 1910.

Stapelia mutabilis var. *megara* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.

Stapelia micrantha Rüst, Monatsschr. Kakt., vi. 38. 1896.

Stapelia milleri Hort., ex White & Sloane: Stapelieae, 198. 1933.

Stapelia mirabilis Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.

Stapelia mixta Rüst, Monatsschr. Kakt., vi. 39. 1896. Nec Masson, 1796.

Stapelia mixta var. *pentagona* Rüst, Monatsschr. Kakt., vi. 39. 1896.

Stapelia muley hassan (Dammann) Berger, Stap. und Klein., 196. 1910.

Stapelia multiflora Rüst, Monatsschr. Kakt., vi. 39. 1896. Nec de Candolle, 1813.

Stapelia multilineata Rüst, Atlas MS.

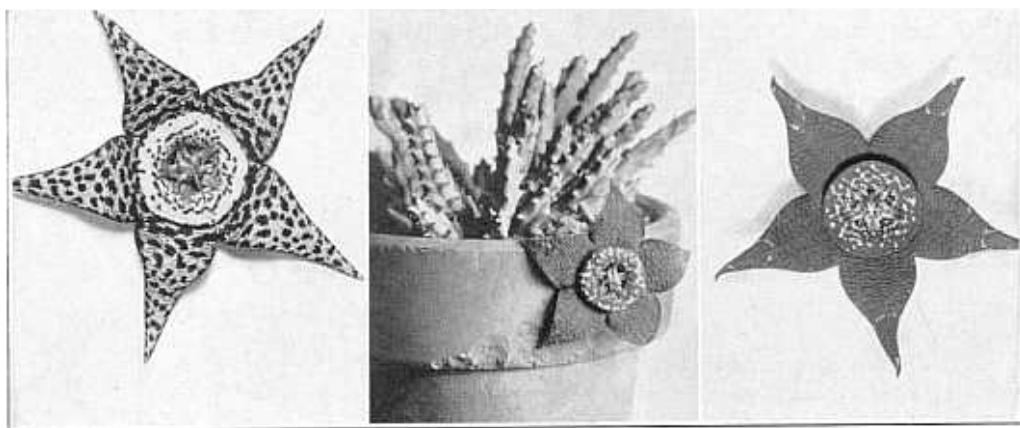


FIG. 708

Stapelia variegata hybrids

Left: Flower has characteristics of var. *retusa* x 0.75 Centre: Form of *S. lunata* x 0.5 Right: *S. lunata* x 0.75

- Stapelia munbyana* Rüst, Monatsschr. Kakt., vi. 40. 1896.
- Stapelia natalensis* Rüst, Monatsschr. Kakt., vi. 37. 1896.
- Stapelia palmata* Rüst, Atlas MS.
- Stapelia pan* (Rüst) Berger, Stap. und Klein., 223. 1910.
Stapelia atropurpurea var. *pan* Rüst, Monatsschr. Kakt., vi. 40. 1896.
- Stapelia panifolia* Rüst, Monatsschr. Kakt., vi. 38. 1896.
- Stapelia parvipunctata* Todaro, Index Sem. Hort. Bot. Panorm., 1861.
- Stapelia parvipunctata* Rüst, Monatsschr. Kakt., vi. 39. 1896. Nec Todaro, 1861
- Stapelia plicata* Salm-Dyck, Hort. Dyck., 267. 1834.
- Stapelia purpurea* Dammann, Berger: Stap. und Klein., 217. 1910.
- Stapelia purpurea* var. *nigrescens* Rüst, Monatsschr. Kakt., vi. 43. 1896.
- Stapelia purpurea* var. *urania* Dammann, Berger: Stap. und Klein., 217. 1910.
- Stapelia putida* Berger, Monatsschr. Kakt., xv. 159. 1905.
- Stapelia radiata* Rüst, Monatsschr. Kakt., vi. 38. 1896. Nec Sims, 1803.
- Stapelia rectiflora* Rüst, Monatsschr. Kakt., vi. 37. 1896.
- Stapelia rectiflora* var. *viridula* Rüst, Monatsschr. Kakt., vi. 37. 1896.
- Stapelia retusa* Rüst, Monatsschr. Kakt., vi. 37. 1896. Nec Schultes, 1820.
- Stapelia rosea* (Rüst) Berger, Stap. und Klein., 223. 1910.
Stapelia atropurpurea var. *rosea* Rüst, Monatsschr. Kakt., vi. 39. 1896.
- Stapelia rufescens* (Rüst) Berger, Stap. und Klein., 223. 1910.
Stapelia atrata var. *rufescens* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.
- Stapelia rugosa* Rüst, Monatsschr. Kakt., vi. 40. 1896. Nec J. Donn, 1804.
- Stapelia rugosa* var. *coronata* Rüst, Monatsschr. Kakt., vi. 40. 1896.
- Stapelia salmiana* Rüst, Monatsschr. Kakt., vi. 39. 1896.
- Stapelia sanguinea* Rüst, Monatsschr. Kakt., vi. 38. 1896. Nec Pasquale, 1867.
- Stapelia scutellata* Todaro, Hort. Panorm., i. 52. 1876-78.
- Stapelia scylla* Dammann, Cat., 120. 1894.
- Stapelia sisypus* Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.
- Stapelia thi* (Dammann) Berger, Stap. und Klein., 197. 1910.
Stapelia angulosa var. *thi* Dammann, Rüst: Monatsschr. Kakt., vi. 37. 1896.
- Stapelia tigrina* (Dammann) Berger, Stap. und Klein., 223. 1910.
Stapelia atrata var. *tigrina* Dammann, Rüst: Monatsschr. Kakt., vi. 38. 1896.
- Stapelia tricolor* (Dammann) Berger, Stap. und Klein., 197. 1910.
Stapelia discolor (Rüst) var. *tricolor* Dammann, Rüst: Monatsschr. Kakt., vi. 39. 1896.
- Stapelia tridentata* Todaro, Index Sem. Hort. Bot. Panorm., 1861.
- Stapelia umbilicata* Rüst, Monatsschr. Kakt., vi. 40. 1896.
- Stapelia uspenskyi* Rüst, Monatsschr. Kakt., vi. 38. 1896.
- Stapelia variegata* var. *asparagensis* Jacobsen, Sukkulente, 206. 1933.

STAPELIOPSIS Pillans, So. Afr. Gard., xviii. 32. 1928.

A monotypic genus, distinguished from all others in the tribe of the STAPELIEAE by the remarkable outer corona. This consists of an erect tube growing out of the base of the corolla-tube, the summit of the outer corona-tube dividing into five very short lobes, which are incurved so as partly to close the mouth of the tube. The inner corona-lobes, in the single species known, are laterally compressed and composed of a long slender horn rising in a graceful arch until it touches the overlapping tips of the outer corona-lobes, while it is adnate to the inner wall of the outer corona-tube for about one-third its height by the outside vertical edge of a small dorsal wing. The entire corona is quite out of view within the nearly globose tube of the corolla, which is well-nigh as remarkable as the corona itself. This corolla-tube has a very small mouth, from the continuation of which the tiny corolla-lobes arise quite erect. The single species is native to Little Namaqualand.

1. *Stapeliopsis neronis* Pillans, So. Afr. Gard., xviii. 32. 1928.

(Description by N. S. Pillans, l.c., translated from the Latin):

Stems: dense, erect or ascending, green variegated with purple and brown, covered with very minute papillate hairs, 4-angled, 3 to 3½ cm. in diameter; angles obtuse, hardly compressed, with flat subconvex sides (concave when young) and broad deltoid acute shortly mucronate teeth 2 to 3 mm. long;

Flowers: 1 to 3 in cymes near the base of the young stems, successively developed;

*Pedice*l: erect-spreading, velvety, 5 to 7 mm. long;

Sepals: 4 mm. long, ovate-lanceolate, acute, minutely velvety;

Corolla: urceolate, velvety outside, deep purple, fleshy, 17 to 20 mm. long, up to 13 mm. in diameter, at the mouth inside 1½ to 1¾ mm. in diameter; *tube* subglobose, with 5 grooves running lengthwise on the lower half, inside purple and densely papillate, the papillae tipped with a short or long simple purple hair; the throat light purple-white; *lobes* 4 to 5 mm. long, 3½ to 4 mm. broad at the base, erect, ovate-deltoid, acute, stiff, white or pale purple;

Outer corona: rising from the base of the corolla, erect, tube-shaped, outside almost smooth, purple, with minute simple purple hairs on the basal half, 5-lobed, the lobes incurved, obtuse or acute, up to 1 mm. long and up to 1¾ mm. broad;

Inner corona: lobes ascending, slightly arched, entire, laterally compressed, subulate, acute, 5 mm. long, reaching up to the apex of the outer corona and adnate to the outer corona for a third of its height by a small wing;

Anthers: inflexed on the dilated apex of the style, oblong-elliptical, acute, blunted;

Pollen-masses: ascending, rounded, minutely rugulose, pale, with very short stems.

Type locality: Cape Prov.: Little Namaqualand: Anisfontein.

Distribution: Not further known.

The name, "Nero's *Stapeliopsis*," commemorates the discovery of the species near Anisfontein by Nero, a Hottentot who managed a wagon and team of donkeys used by Mr. Pillans during his botanical expedition to Little Namaqualand in 1926. It is a plant of tufted growth, the stems minutely hairy-papillate. The flowers look somewhat like small deep purple gooseberries, the almost globose corolla-tube opening out at its mouth into very short erect lobes. Inside the surface is densely papillate, the papillae tipped with simple purple hairs. The erect tubular outer corona is purplish also, and covered on its basal half with minute purple hairs.

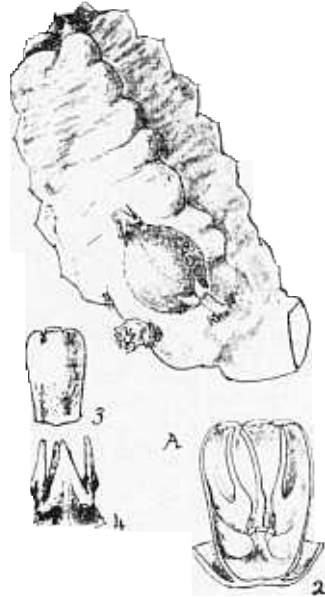


FIG. 709

Stapeliopsis neronis Pillans x 1.

From a drawing by L. Guthrie in South African Gardening and Country Life, 1928.

DIPLOCYATHA N. E. Brown, Journ. Linn. Soc., xvii. 167. 1878.

Diplocyathus K. Schumann, Engler & Prantl: Pflanzenfam., iv. ii. 279. 1895.

(Description by Dr. Brown, Flora Cap., iv. i. 923):

Plant: a dwarf succulent leafless perennial; *stems* decumbent, stout, 4-angled, acutely toothed;

Flowers: large, pedicellate, arising from near the base of the young shoots;

Calyx: 5-partite;

Corolla: tube campanulate, with another tube arising from its base within, reaching to the mouth and there thickened into a recurved rim; *limb* very spreading, 5-lobed, valvate in bud;

Corona: double, arising from the staminal column;

Outer corona: of 5 broad bifid lobes connate at the base;

Inner corona: of 5 ovate lobes incumbent on the backs of the anthers and dorsally adnate at the base to the outer corona;

Staminal column: stamens with their filaments connate into a tube around the ovary, and adnate above to the dilated top of the style; *anthers* subhorizontally inflexed upon the truncate style-apex; *pollen-masses* solitary in each anther-cell, subhorizontal, with a pellucid submarginal line along the inner margin, attached in pairs by exceedingly short broad caudicles to (or subsessile upon) the rather large lateral wings of the pollen-carriers.

Type species: *Diplocyatha ciliata*.

Total species: 1.

Distribution: Cape Province.

The genus *Diplocyatha* was established in 1878 by Dr. N. E. Brown to provide for *D. ciliata*. The name, *Diplocyatha*, is derived from two Greek words meaning "double cup" and refers to the extraordinary secondary tube, or elevated annulus-formation, which rises in the deep throat

of the flowers. The name was later changed by K. Schumann to *Diplocyathus*, to conform to the masculine of the Greek noun, but such a change is not valid and the earlier form, as written by Dr. Brown, is maintained.

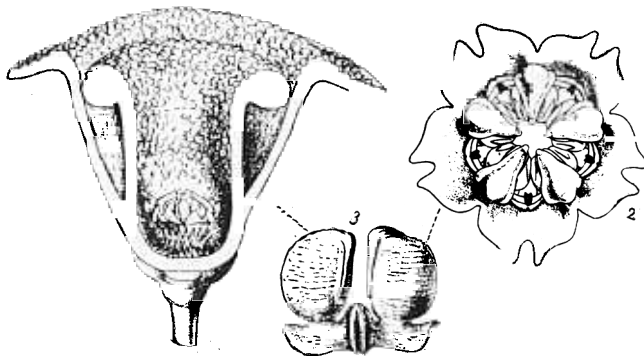


FIG. 710

Diplocyatha ciliata N. E. Brown

Section of the corolla, showing the "double cup." From a drawing by N. E. Brown in Journal of the Linnean Society, 1878.

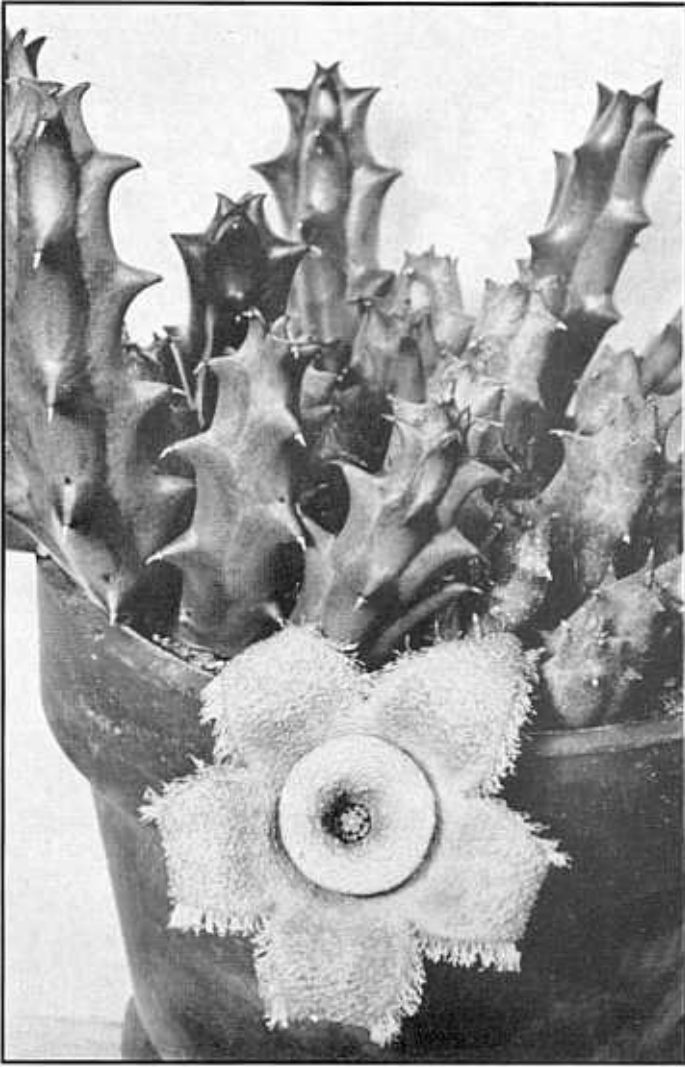


FIG. 711

Diplocyatha ciliata N. E. Brown x 1.

1. *Diplocyatha ciliata* (Thunberg) N. E. Brown, Journ. Linn. Soc., xvii. 168. 1878.

Stapelia ciliata Thunberg, Prodrum, i. 46. 1794.

Podanthes ciliata Haworth, Syn. Pl. Succ., 34. 1812.

Tromotriche ciliata Sweet, Hort. Brit., 2 Ed., 358. 1830.

(Description by Dr. Brown, Flora Cap., iv. i. 923):

Stems: decumbent and ascending, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick exclusive of the teeth, obtusely 4-angled, with stout conical acute teeth 2 to 3 lin. long, glabrous, green, mottled with purple;

Flowers: subsolitary from near the base or middle of the stems;

*Pedice*l: 6 to 8 lin. long, erect, glabrous;

Sepals: about $\frac{1}{4}$ in. long, ovate or ovate-lanceolate, acute, glabrous;

Corolla: about 3 in. in diameter, smooth and glabrous outside, densely papillate-rugose on the inner face, according to *Thunberg* and *Masson*, greyish, with the tips of the papillae reddish, but according to *Masson*'s figure, pale yellowish with a greyish ring around the mouth of the tube, minutely dotted with red; *tube* campanulate, apparently slightly raised at its mouth around the very thick recurved papillate-rugose rim of the inner tube, which is densely covered with stiff purple hairs at the base around and under the corona; *lobes* about 1 in. long, $\frac{2}{3}$ to $\frac{3}{4}$ in. broad, spreading, ovate, acute, ciliate from base to apex with clavate vibratile white hairs;

Outer corona: lobes arising above the base of the staminal column, connate at the base, somewhat spreading, with the free part $\frac{2}{3}$ to $\frac{3}{4}$ lin. long, 1 lin. broad, transverse or subquadrate, very obtusely or subacutely bifid, glabrous, apparently yellowish dotted with purple-brown;

Inner corona: lobes incumbent on the backs of the anthers, about $\frac{3}{4}$ lin. long, thick, ovate, acute or acuminate, with the tips produced into a very short erect point, apparently yellowish, dotted and marked with purple-brown.

Type locality: Cape Prov.: Ceres Distr.: Karroo, "between the Roggeveld Mountains and Paarde Berg."

Distribution: Also from Calvinia Distr.: near Hantam; Beaufort West Distr.: near Nieuwveld; Prince Albert Distr.: near Prince Albert; Ladismith Distr.: near Ladismith.

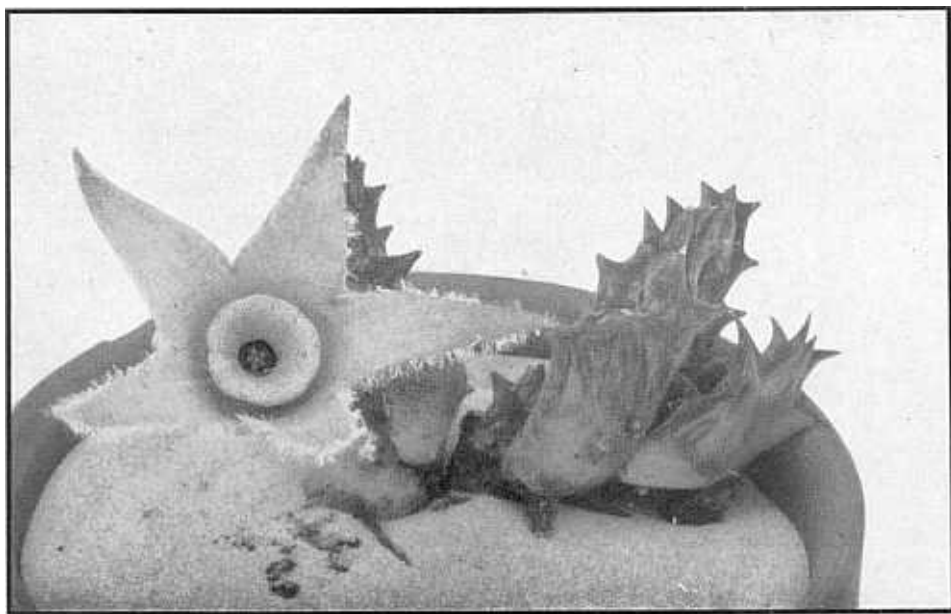


FIG. 712

Diplocyatha ciliata N. E. Brown x 1.

From the collection of Dr. R. H. Pulleine.

The "fringed *Diplocyatha*" was discovered by *Thunberg* and has the distinction of being the first species illustrated in the *Stapeliae Novae* of *Francis Masson*. It is a most beautiful flower, even in greenhouse culture, and seen growing native on

the veld must be singularly striking. *Mrs. van der Bijl* writes of it: "It is very showy, with its nearly white flowers and the long white fringes of hairs moving with the least breath of wind, so that one sees it a long way off. It grows in masses under the

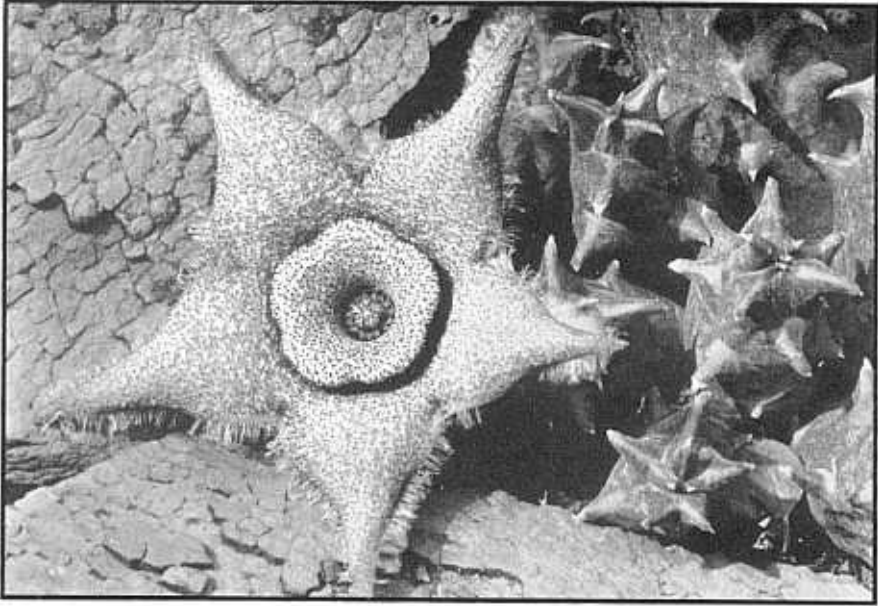


FIG. 713

Diplocyatha ciliata N. E. Brown x 1

Photo by Herbert Lang.

bushes. It is to my mind the finest of our Stapeliads." The inner tube is like a very tall *Orbea* annulus, the wall supporting the annulus elongated and forming with the upper annular surface an extremely graceful glass-shaped body, unique among the Stapeliads. Dr. Marloth, one of the most accurate of botanical observers, made a singular error in diagnosing this inner tube as a third corona, whereas it is distinctly a part of the corolla-fabric. In the Flora of South Africa, he wrote: "In the year 1905 we found a species of a stapelioid plant near Prince Albert which Masson had figured in 1796 under the name of *Stapelia ciliata*, but which N. E. Brown separated from that genus when examining the type plant. It is now known as *Diplocyatha ciliata*. The structure of its flower differs considerably from all other genera by having a triple corona, the outer one forming a circular tube surrounding the outer two.

When Mr. Brown received my specimens he was in ecstasies, and wrote that it was one of the red-letter days of his life, as he could never have hoped to see this appar-

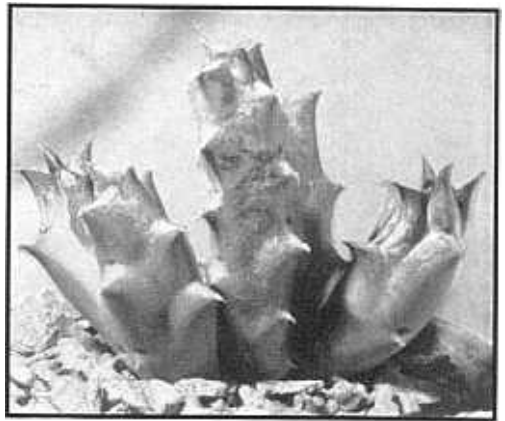


FIG. 714

Diplocyatha ciliata N. E. Brown x 1.

Photo by James West of a seedling plant.

ently lost plant in the living state—and his plant thrived and flowered. Since then it has been found in a few other areas, *e.g.* near Ladismith in the Little Karroo and in the Western Karroo north of Karroo-poort.”

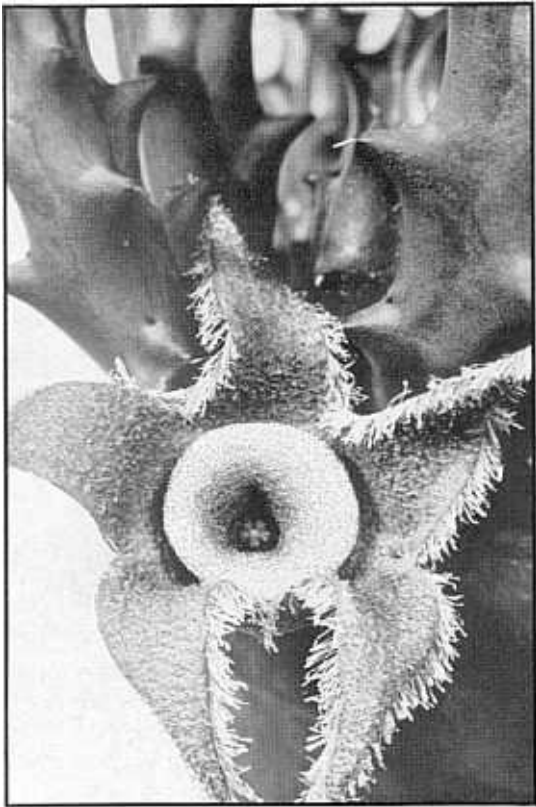


FIG. 715
Diplocyatha ciliata N. E. Brown x 1

PECTINARIA Haworth, Suppl. Pl. Succ., 14. 1819.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 867) :

Plants: succulent leafless herbs; stems tufted, usually procumbent and often with their tips or other portions buried in the ground, in one species sometimes (always?) flowering underground, acutely, obtusely or obscurely 4 to 8-angled, acutely toothed or tessellately tuberculate along the angles, often with a distinct bud in the axil of each tooth or tubercle when the stems are fully developed;

Flowers: solitary or in fascicles in the grooves or on the sides between the angles;

Calyx: 5-partite;

Corolla: small, bud-like, often with a "frosted" appearance on the inner surface and sometimes outside as well; with a short cup-shaped, hemispheric or broad and shallow tube and 5 lobes connate at the apex, with narrow openings between them;

Outer corona: cup-like and variably cut into 10 to numerous teeth, or of 5 minute lobes;

Inner corona: of 5 lobes incumbent upon the backs of the anthers or erect and about equaling them or longer and connivent-erect over them;

Staminal column: stamens with the filaments connate into a tube around the ovary and adnate to the dilated top of the style; *anthers* free, without appendages, incumbent upon the top of the style; *pollen-masses* solitary in each anther-cell; minute, ellipsoid or subglobose, pellucid at the ends or sides turned towards each other, attached in pairs to the very minute brown pollen-carriers by very short caudicles;

Follicles: narrowly fusiform, acuminate, smooth, glabrous.

Type species: *Pectinaria articulata*.

Total species: 6.

Distribution: Cape Province.

The genus *Pectinaria* was founded by Haworth in 1819 on a plant discovered by Thunberg about 1773, *P. articulata*. He coined the generic name from the fact that this species has the rim of the outer corona-lobes toothed like a comb or, in technical language, *pectinate*, a feature not characteristic of the remaining species to be discovered later, with the exception of *P. asperiflora*. But it is difficult to foresee what future species of a genus may prove to be like, and no additional *Pectinarias* were discovered until near the beginning of the present century (see p. 732). To date six species in all are known, all from the Cape Province. In some of these the outer corona is cleft into regular lobes, as in *Stapelia*; in others it is disk-like and intergrown, as in *Caralluma*. The underlying



FIG. 716

Pectinaria saxatilis N. E. Brown x 1.
Showing the generic character of corolla-lobes connate at the tips.

principle of the genus is therefore not to be sought in the corona form, but rather in the union of the corolla-lobes at their tips. Dr. Brown has referred to this as follows: "The genus *Pectinaria* is perhaps the most unattractive as well as one of the most interesting in the tribe of the STAPELIEAE. It is unattractive because its flowers are small and dull colored outside. The lobes of the corolla, instead of spreading, are closed together and united at the tips, leaving only narrow openings between them through which only very minute insects can have access to the interior of the flower, which is not exposed to

view. This lends it an interest, as it must evidently be fertilized by a different group of insects. And it is further interesting because of the singular underground habits of some of the species, notably *P. arcuata* and *P. pillansii*, which are unique in the whole of the ASCEPIADACEAE". The cage-like shape which the corolla assumes in the *Pectinaria* flowers by reason of the lobes being joined at the tips does not recur in any other genus of STAPELIEAE, but it is found in three genera and about fifty species of CEROPEGIEAE. The stems of the *Pectinarias* vary somewhat, being extremely tubercled in some species.

KEY TO THE GENUS PECTINARIA

- I. Corolla outside without papillae (Stems 4-angled) :
 - A. Corolla inside without papillae:
 - a. Corolla inside without hairs (Stems obtusely 4-angled) 1. *P. arcuata*
 - b. Corolla inside with fine hairs (Stems acutely 4-angled) 2. *P. saxatilis*
 - B. Corolla inside with papillae:
 - a. Corolla inside without hairs (Stems acutely 4-angled) 3. *P. pillansii*
 - b. Corolla inside with fine hairs in tube (Stems acutely 4-angled) 4. *P. tulipiflora*
- II. Corolla outside with papillae (Stems 6 to 8-angled) :
 - A. Corolla inside with simple papillae (Stems 6-angled) 5. *P. articulata*
 - B. Corolla inside with compound papillae (Stems 6 to 8-angled) 6. *P. asperiflora*

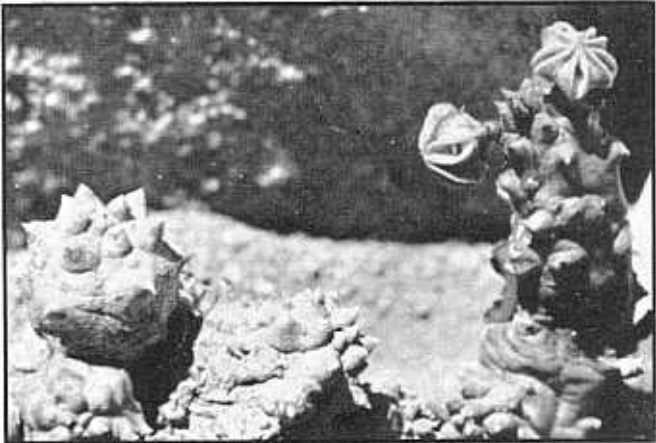


FIG. 717
Pectinaria asperiflora
N. E. Brown x 1.25
Photo by R. H. N. Smithers.

1. *Pectinaria arcuata* N. E. Brown, Flora Cap., iv. i. 870. 1909.

(Description by Dr. Brown, l.c.):

Stems: 2 to 4 (or more) in. long, 3 to 5 lin. thick, arching-procumbent and then diving underground, sometimes rising again to the surface, but always finishing their growth underground, forming loops $\frac{1}{2}$ to 1 in. high, very obtusely and somewhat obscurely 4-angled, with slightly flattened sides, somewhat tessellately tuberculate along the angles, with the tubercles varying from scarcely prominent to $\frac{3}{4}$ lin. long, apiculate, glabrous, green, not glaucous;

Flowers: along the sides or under the loops of the stems, 1 to 3 in a fascicle;

Pedicel: 1 to $1\frac{1}{2}$ lin. long, glabrous, green;

Sepals: 1 lin. long, ovate, subulate-acuminate, recurved at the tips, glabrous;

Corolla: in general outline acuminate from a short ovoid base, glabrous and smooth outside and within; *tube* $1\frac{1}{2}$ lin. long, cup-shaped or subhemispheric, straw-colored or pale yellowish outside, dark purple within, the dark color divided to half-way down into 5 ovate lobes or rounded crenations extending up the base of the lobes; *lobes* $3\frac{1}{2}$ lin. long, 1 to $1\frac{1}{4}$ lin. broad at the base, thence gradually tapering to the acute connate tips, not recurved at the margins, but separating so as to form narrow lanceolate openings between them, pinkish or pale purple-tinted on the back, creamy-white, spotted with purple at the tips on the inner face, not ciliate;

Corona: outer and inner corona-lobes apparently in one series, bright yellow, with the 5 lobes alternating with the anthers (*outer corona*) minute, scarcely $\frac{1}{4}$ lin. long, deltoid, acute, ascending-spreading, the other 5 (*inner corona*) $\frac{1}{2}$ lin. long, more than $\frac{1}{4}$ lin. broad and almost as thick, erect, subclavate-oblong, very obtuse or subtruncate, scarcely exceeding the level of the anthers, with their rounded backs projecting like 5 stout ribs beyond the outer lobes.

Type locality: Cape Prov.: Bedford Distr.: near Bedford.

Distribution: Also in Cradock Distr.

The "hoop-like *Pectinaria*" reverses the procedure of the other *Stapeliads* which produce underground shoots and cause these to reappear at the surface some little distance away from the parent plant, for it terminates the growth of its stems underground, sometimes it is true rising again to the surface, but always making a final underground dive with the very tip of its shoots.

The stems are 4-angled, but differ from those of the three other *Pectinarias* with 4-angled stems in being formed of obscure angles with slightly flattened sides,

whereas the others have distinctly acute angles. The flowers are creamy-white on the inner face, spotted with purple, becoming wholly dark purple at the base. The entire inner face is glabrous, and without papillae, a characteristic by which the species can be readily distinguished from all other *Pectinarias*. The plant is a very rare one, having been collected by Mr. Pillans only in a single locality, under a bush about 9 miles south-east of Bedford, in the south-eastern part of the Cape Province. H. W. James reports it also from the neighboring Cradock district.

2. *Pectinaria saxatilis* N. E. Brown, Gard Chron., xxxv. 211. 1904.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 868):

Stems: prostrate, often growing downwards into the ground and then curving upwards or the young shoots commencing to develop underground, acutely 4-angled, $1\frac{1}{2}$ to 5 in. long, $\frac{1}{2}$ to 1 in. square, with flat or slightly concave sides and broadly deltoid acute teeth 1 to $1\frac{3}{4}$ lin. long along the angles, having a small (and, with age, prominent) bud in each axil, glabrous, at first glaucous-green, becoming dull green, often tinged or marked with dull purplish, finally greyish;

Flowers: in fascicles of 4 to 7 on the sides, near the base of the stems, developing successively, erect;

Pedice: $\frac{1}{2}$ to 1 lin. long, glabrous;

Sepals: about 1 lin. long, lanceolate or ovate-subulate, with very acute recurved tips, glabrous;

Corolla: bud-like, $4\frac{1}{2}$ to 6 lin. long, 4 to 5 lin. in diameter, broadly ovoid or subglobose, acute or shortly acuminate or apiculate, entirely blackish-purple or very dark purple-brown, glabrous outside, covered with fine hairs and having a "frosted appearance" (*Pillans*) inside; tube 2 to $2\frac{1}{2}$ lin. deep, broadly cup-shaped or hemispheric; *lobes* 3 to 5 lin. long, $2\frac{1}{2}$ lin. broad, deltoid to ovate-lanceolate, acute, cohering at the tips, with narrow fissures between them in the lower part, not recurved at the margins and not ciliate;

Outer corona: lobes at the base of the staminal column, minute, not $\frac{1}{4}$ lin. long, spreading, broadly ovate or deltoid, subacute, glabrous, dark purple-brown;

Inner corona: lobes $1\frac{1}{3}$ to $1\frac{1}{2}$ lin. long, much exceeding and erectly connivent (or sometimes connate at the tips) high above the staminal column, rather thick and fleshy, linear or subulate, obtuse or acute, with a short deltoid-subulate tooth or small thickened crest on the back below the middle, dark purple-brown;

Staminal column: $\frac{3}{4}$ lin. long; anthers subquadrate, obtuse, without appendages, incumbent on the outer part of the truncate style-apex.

Type locality: Cape Prov.: Laingsburg Distr.; on a hill north-west of Laingsburg at Zout Kloof, growing around and under stones.

Distribution: Also at other points in Laingsburg Distr.; in Oudtshoorn Distr.: near Oudtshoorn; and Willowmore Distr.: between Willowmore and Port Elizabeth.

The "Pectinaria that dwells among rocks" takes its name from having been discovered by Mr. Pillans growing around and under stones on a hill near Laingsburg in the westerly Karroid area. While very rare in its natural habitats, it has become the most generally distributed of the *Pectinarias* in the collections of fanciers, and always arouses great interest when its ovoid dark purple flowers blossom. The singular frosted appearance of the inner corolla surface is difficult to see through the minute fissures between the corolla-lobes which cohere at the tips in typical *Pectinaria* fashion, unless they are artificially pried open. The inner corona is also noteworthy, the lobes rising high above the anthers and then bending over them with their tips some-



FIG. 718

Pectinaria saxatilis N. E. Brown x 0.75
From W. I. Beecroft Gardens. Photo by Havens.



PLATE XVIII.

Pectinaria saxatilis N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1936.

times connate, forming a little coronal cage within the outer cage of the corolla. The stems are curious, too, in their apparent preference for an underground career. Mr. Pillans has explained that a stem-bud forms in the axil of every tooth on the stems, but

that only those on the under side develop into shoots. The stems always retain a prostrate habit, often growing down into the soil and presently curving upwards again.



FIG. 719

Pectinaria saxatilis N. E. Brown x 1.25

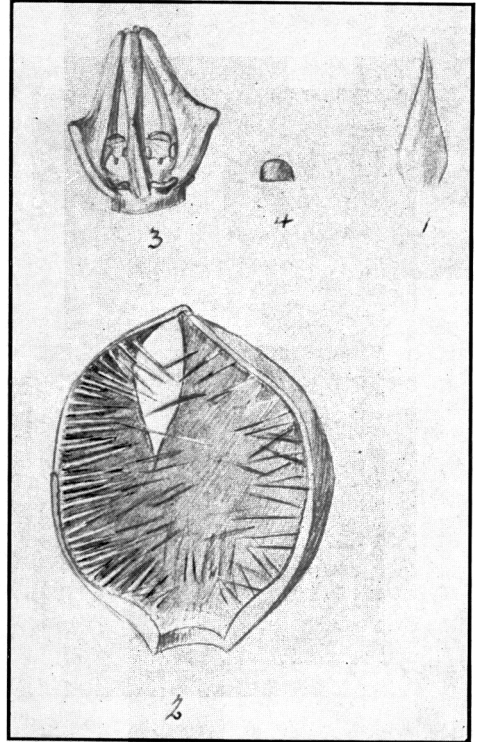


FIG. 720

Pectinaria saxatilis N. E. Brown

1. Sepal;
2. Longitudinal section of the corolla;
3. Corona;
4. One of the minute outer corona-lobes.

From an enlarged drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1936.

3. *Pectinaria pillansii* N. E. Brown, Flora Cap., iv. i. 869. 1909.

(Description by Dr. Brown, l.c.):

Stems: up to 6 in. or more long, procumbent or partly subterranean, acutely 4-angled, $\frac{1}{2}$ to $\frac{3}{4}$ in. square, with flat or slightly concave sides and acute deltoid-conical teeth $\frac{1}{2}$ to 2 lin. long, glabrous, dull green, more or less mottled or suffused with purple where exposed to the sun, with a slight glaucous bloom on the young parts, the teeth being at first of a paler green than the rest, becoming hardened and pale brown, having a bud at every axil;

Flowers: in clusters of 3 or more at the middle of the sides, often (always?) developed underground;

*Pedice*l: 1 to $1\frac{1}{2}$ lin. long, glabrous;

Sepals: about 1 lin. long, ovate, acuminate, glabrous;

Corolla: $3\frac{1}{2}$ lin. in diameter, broadly depressed pear-shaped, light purple, with a frosted appearance all over the inside, from being thinly covered with watery or air-containing papillae, almost smooth and glabrous outside; *tube* about $1\frac{1}{2}$ lin. long, cup-shaped; *lobes* unusually thick and rigidly fleshy, 2 to $2\frac{1}{4}$ lin. long, 2 to $2\frac{1}{2}$ lin. broad at the base, like an equilateral triangle in outline, acute, inflexed and connate (or occasionally, by accident?, free) at the tips, forming a short broad dome-like top to the flower, their margins not recurved but separated so as to form very narrow fissures between them;

Outer corona: of 5 minute lobes about $\frac{1}{4}$ lin. long, broadly ovate, obtuse, spreading, apparently whitish;

Inner corona: lobes $1\frac{1}{3}$ lin. long, laterally much flattened, subfalcate, with a large rounded acute-edged hump on the back above the middle and there $\frac{1}{2}$ lin. broad from front to back, erect, with the tips connivent high above the style-apex, dark purple.

Type locality: Cape Prov.: Somerset East Distr.: Glen Avon Estate, near Somerset East.

Distribution: Not further known.

Pectinaria pillansii commemorates a great achievement of Mr. Pillans. Dr. Brown told the story in the Journal of the Cactus and Succulent Society of America, 1931, saying: "In connection with the genus *Pectinaria* a remarkable coincidence befell me, for one afternoon when preparing my account of the ASCLEPIADACEAE for the Flora Capensis I had arrived at this genus and was somewhat puzzled about it, for I did not quite understand the structure of the flower as given by Haworth in 1819 in his Supplementum Plantarum Succulentarum, p. 14, which account, together with Masson's figure of the plant, in which no details of structure are represented, was all that was known of the plant, as no material of it had been preserved. I had just decided merely to give a translation of Haworth's description of this solitary species, which he knew and called *Pectinaria articulata* Haw., when a letter and parcel were brought to me. Upon opening the parcel

my astonishment and delight can well be imagined when I found it to contain not only what must be either a variety of the very species Haworth had described or a species very close to it, but also four other new species of the same genus, preserved in spirit and each accompanied by a piece of the living plant! They had been sent me by N. S. Pillans, the great collector at the Cape, who had even surpassed himself by discovering these five very rare species at points in the Cape Colony very remote from one another, some in the East and some in the West regions, and others along the Coast region. In the case of the species which I named after him, *P. pillansii*, only one plant was ever found, under the dry leaves of an aloe. This amazing invoice was a most welcome coincidence that enabled me to give a much more complete account of the genus than had previously appeared."

P. pillansii, like *P. saxatilis*, always has

4-angled stems. The flowers differ in being light purple, of depressed pear-shape, papillate on the inner surface, but without hairs; while those of *P. saxatilis* are dark purple, broadly ovoid in shape and covered inside with fine hairs, but not otherwise papillate. Both species are described as having a frosted appearance on the inner

face. In one feature *P. pillansii* is unique among Asclepiads, the flowers all maturing underground, so far as the observation of Mr. Pillans has as yet established. Young flower buds are also formed above ground, but none of these has been found to develop.

4. *Pectinaria tulipiflora* Luckhoff, So. Afr. Gard., xxiv. 101. 1934.

(Description by C. Luckhoff, l.c.):

Stems: procumbent, acutely 4-angled, 2 to 6 cm. long, 1 cm. square, with flat sides and acute teeth $1\frac{1}{2}$ mm. long along the angles, with a small bud in each axil, glabrous, dull green, mottled with purple;

Flowers: in pairs near the base of the stems, successively developed;

Pedicel: 2 to $3\frac{1}{2}$ mm. long, glabrous;

Sepals: $2\frac{1}{4}$ mm. long, ovate, with attenuated tips, glabrous;

Corolla: narrowly obovoid and bud-like, with a somewhat funnel-shaped tube $6\frac{1}{2}$ mm. long and $6\frac{1}{2}$ mm. wide at the mouth, dull purple-red; outside glabrous, with a ridge running from the tip of each lobe to the base of the corolla; inside very minutely papillate, the tube and base of the lobes covered with white hairs; lobes $5\frac{1}{2}$ mm. long, 4 mm. broad at the base, acuminate, usually connate at the tips;

Outer corona: lobes minute, truncate, glabrous, bright yellow;

Inner corona: lobes 3 mm. long, greatly exceeding the anthers and connivent high above the staminal column, thick and obtuse, with a small gibbosity on the back above the middle, glabrous, bright yellow.

Type locality: Cape Prov.: Van Rhynsdorp Distr. at the foot of the Bokkeveld Mts.

Distribution: Not further known.

This most recent member of the *Pectinarias* was discovered by Dr. J. Luckhoff, growing in deep shadow, under stones and dense bushes, at the foot of the Bokkeveld Mountains, in the barren country north of the Olifants River, about 50 miles inland from the Atlantic coastline. It is a very rare species, only two plants having been found. Its relationship is with *Pectinaria saxatilis* and *P. pillansii*, the inner corona-lobes being connivent high above the style-apex, as in the older two species. No other *Pectinarias* have this striking feature. The color of the whole corona, however, differs from both *P. saxatilis* and *P. pillansii* in being bright yellow. The corolla-lobes are usually connate at the tips, as is customary

among the *Pectinarias*, but occasionally they open out, perhaps through accident, and at such time they assume the tulip-like form, from which the name of the plant derives. The delicate shape of the flowers contrasts with the broadly ovoid shape of those of *P. saxatilis* and the pear shape of those of *P. pillansii*. The flowers are further characterized by the absence of the "frosted appearance" within the corolla-tube, which is emphasized in the descriptions of both of its related species. The tube and base of the lobes are, however, covered with white hairs and minutely papillate. A final distinction is that the plant stems are more slender than in either *P. saxatilis* or *P. pillansii*.



PLATE XIX.

Pectinaria tulipiflora Luckhoff x 2.

From an original water-color drawing
by Carl Luckhoff.

5. *Pectinaria articulata* (Aiton) Haworth, Suppl. Pl. Succ., 14. 1819.

Stapelia articulata Aiton, Hort. Kew., 1 Ed., i. 310. 1789.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 870):

Plant: dwarf, tufted; *branches* procumbent or ascending, 1 to 2 in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, oblong, somewhat tessellately 6-angled or with 6 series of short stout conical tubercles, apiculate or acute, with a small bud in the axil of each, glabrous, ferruginous, with purplish branches;

Flowers: solitary in the grooves between the angles at or towards the tips of the branches;

*Pedice*l: apparently about 1 lin. long, thick, glabrous;

Sepals: lanceolate, acute;

Corolla: bud-like, about $\frac{1}{4}$ in. in diameter, papillate and greenish outside, pearly-papillate and blackish-red within, glabrous, not ciliate; *lobes* deltoid, connate at the tips, with reflexed margins, leaving narrowly ovate acute openings between them;

Outer corona: pectinate, blackish-red, white below;

Inner corona: lobes blackish.

Type locality: Cape Prov.: Calvinia Distr.: near the edge of the Roggeveld Mountains

Distribution: Not further known.

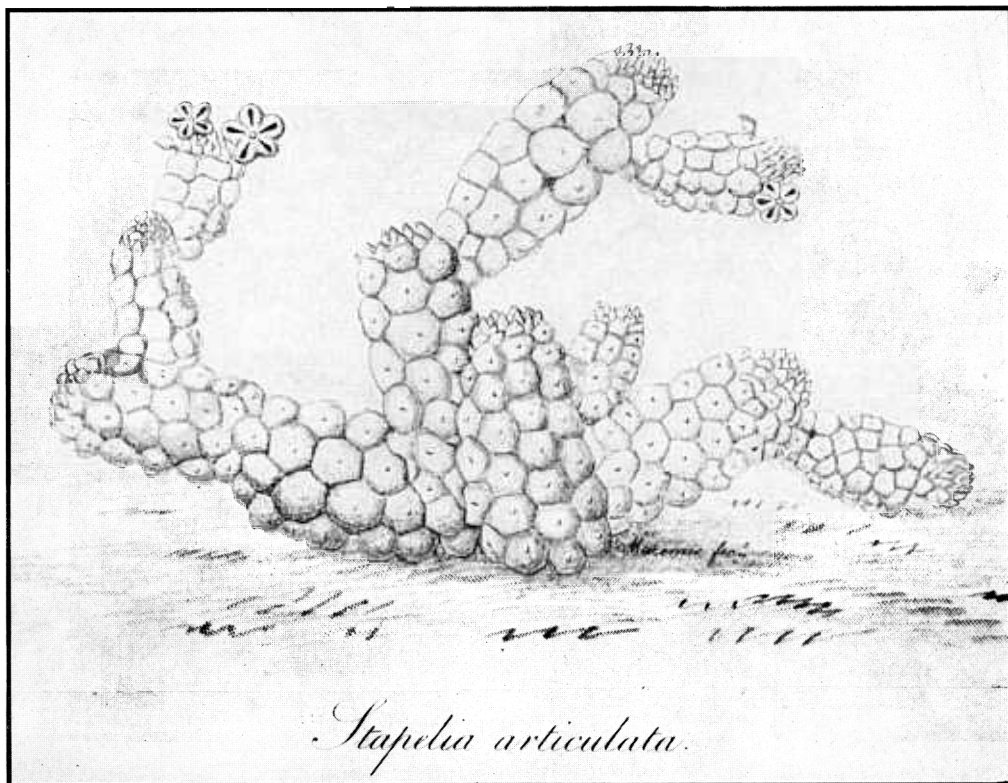


FIG. 721

Pectinaria articulata Haworth x 1

From Masson: *Stapeliae Novae*, 1796

he "jointed Pectinaria" was discovered tains about 1773. In his Travels, Thun-
Thunberg near the Roggeveld Moun- berg relates that the Hottentots ate the

plant, while the colonists pickled it like cucumbers. Dr. Marloth adds that the *Pectinarias* are used to this day as pickles by the farmers of the Karroo. Doubtless in consequence, they are extremely rare! *P. articulata* is a dwarf species, the stems 6-angled. The flowers are described as

blackish-red inside, the inner surface covered with small pearly papillae or watery tubercles. The details of the corona are imperfectly known, but the genus received its name from the pectinate, or comb-like, edge of the outer corona-lobes.

Var. a. *Pectinaria articulata* var. *namaquensis* N. E. Brown, Flora Cap., iv. 871 1909.

(Description by Dr. Brown, l.c.):

Branches: $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, with the tubercles $\frac{1}{2}$ to 1 lin. long, dull purple-brown;

Flowers: drooping (*Pillans*);

Pedicel: $1\frac{1}{2}$ to 2 lin. long, stout, glabrous;

Sepals: $\frac{3}{4}$ to 1 lin. long, ovate or ovate-lanceolate, acute, minutely papillate;

Corolla: bud-like, about 2 lin. long, $2\frac{1}{2}$ to 3 lin. in diameter, shortly and broadly conical, acute; subtruncate at the base, papillate and greenish outside, covered with small (watery?) tubercles on the (whitish?) inner surface; *tube* about $\frac{1}{2}$ lin. deep, broad and shallow; *lobes* 2 lin. long, $1\frac{1}{4}$ to $1\frac{1}{3}$ lin. broad at the base, elongated deltoid;

Outer corona: cupular, scarcely $\frac{1}{2}$ lin. high, usually more or less irregularly divided into numerous (30 or more) erect slender teeth, glabrous, yellowish;

Inner corona: lobes about $\frac{1}{4}$ lin. long, oblong, obtuse, closely incumbent on the backs of the anthers and not exceeding them, dorsally connected to the outer corona at the base, yellowish.

Type locality: Little Namaqualand: without locality.

Distribution: Van Rhynsdorp Distr.: Nieuwefontein.

As the type of *P. articulata* is only imperfectly known, it was not possible for Dr. Brown to determine whether the "Namaqualand variety" really is a variety or a distinct species. It appears to differ from the type principally in the color of the corolla and corona. It was collected by Mr.

Templeman in Little Namaqualand about 1900.

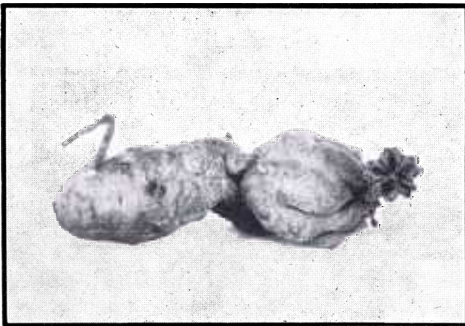


FIG. 722

Pectinaria articulata var. *namaquensis*
N. E. Brown x 1.

Photo by S. Tapscott.

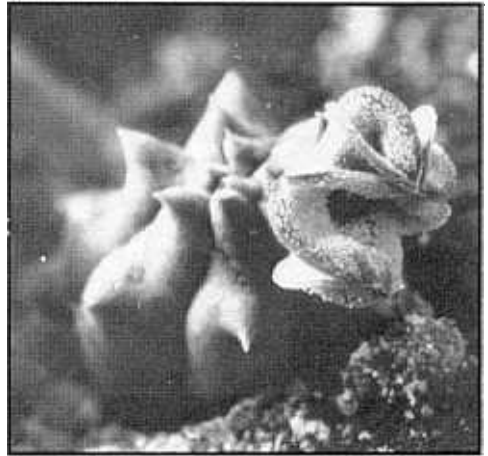


FIG. 723

Pectinaria articulata var. *namaquensis*
N. E. Brown x 4.

Photo by Carl Luckhoff of a plant growing at
Nieuwefontein, 80 miles north of
Van Rhynsdorp.

6. *Pectinaria asperiflora* N. E. Brown, *Flora Cap.*, iv. i. 871. 1909.

(Description by Dr. Brown, l.c.):

Stems: tufted, procumbent or erect, $\frac{3}{4}$ to 3 in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, globose to cylindric, with 6 to 8 angles formed of closely placed stout conical minutely apiculate tubercles $\frac{3}{4}$ to 1 lin. long, glabrous, dark dull purple on the young parts;

Flowers: solitary from the grooves between the angles on the young growth;

Pedicel: $1\frac{1}{2}$ to 4 lin. long, usually decurved or recurved at the apex, slender, glabrous, very slightly and obscurely roughened, in fruit ascending, $\frac{1}{2}$ to $\frac{2}{3}$ in. long, $1\frac{1}{2}$ to 2 lin. thick, purple-brown;

Sepals: $\frac{3}{4}$ to 1 lin. long, ovate-lanceolate, acute, glabrous, obscurely papillate;

Corolla: drooping, pentagonally subglobose, or with a campanulate tube and a very shortly conical top, 2 to $2\frac{1}{2}$ lin. in diameter, abruptly and shortly pointed in bud and when closed after opening, obtuse when open, with the margins of the lobes slightly recurving, leaving narrow lanceolate fissures between them, outside purple-brown, minutely papillate, inside white dotted with purple, densely covered with large papillae, which, when magnified, are seen to be covered with spike-like processes; *tube* $1\frac{1}{2}$ lin. long, cup-shaped; *lobes* arching over the tube, connate at the tips, $1\frac{1}{2}$ to 2 lin. long, $1\frac{1}{2}$ lin. broad, deltoid-ovate, acuminate;

Outer corona: about $\frac{1}{2}$ lin. long, cupular, usually with 5 pairs of erect subulate teeth $\frac{1}{4}$ lin. long, alternating with 5 broad transverse shorter lobules irregularly 5 to 8-denticulate at their subtruncate apices, but sometimes irregularly divided into many subulate teeth, dark purple-brown;

Inner corona: lobes $\frac{1}{4}$ lin. long, deltoid, acute, closely incumbent upon the backs of the anthers and slightly exceeding them, broadly connected at the base to the outer corona, dark purple-brown;

Follicles: (immature) erect, slightly diverging, 3 to $3\frac{1}{2}$ in. long, $2\frac{1}{2}$ lin. thick, narrowly fusiform, tapering to an acute apex, smooth, glabrous, dull greyish-green, thickly marked with linear spots and lines of purple-brown.

Type locality: Cape Prov.: Laingsburg Distr: near Matjesfontein.

Distribution: Not further known.

Dr. Brown contributed a most interesting account of his astonishment on first dissecting a flower of this species to the

Journal of the Cactus and Succulent Society of America, 1931. "I was amazed to find," he wrote, "that the inner surface of the corolla-lobes was totally different in structure from any lobes or petals seen in any of the many thousands of flowers of all orders I had previously examined and appeared to be very charming, although, from being preserved in fluid, the color had faded.

"Both the plant and flower in external appearance are about as unattractive as can well be imagined. The plant does not rise more than $1\frac{1}{2}$ inches above the soil and consists of a cluster of leafless fleshy stems, in shape like little 6 to 8-ribbed sausages, from $\frac{3}{4}$ to 3 in. long and $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, of a dingy purplish or green color. As stated, there are no leaves, but small tubercles bearing very minute points, which are the rudiments of leaves, are scattered along the stems, forming the ribs. During the

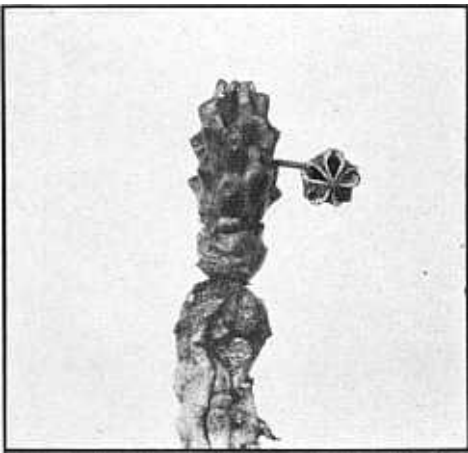


FIG. 724

Pectinaria asperiflora N. E. Brown x 25

Photo by S. Tapscott.

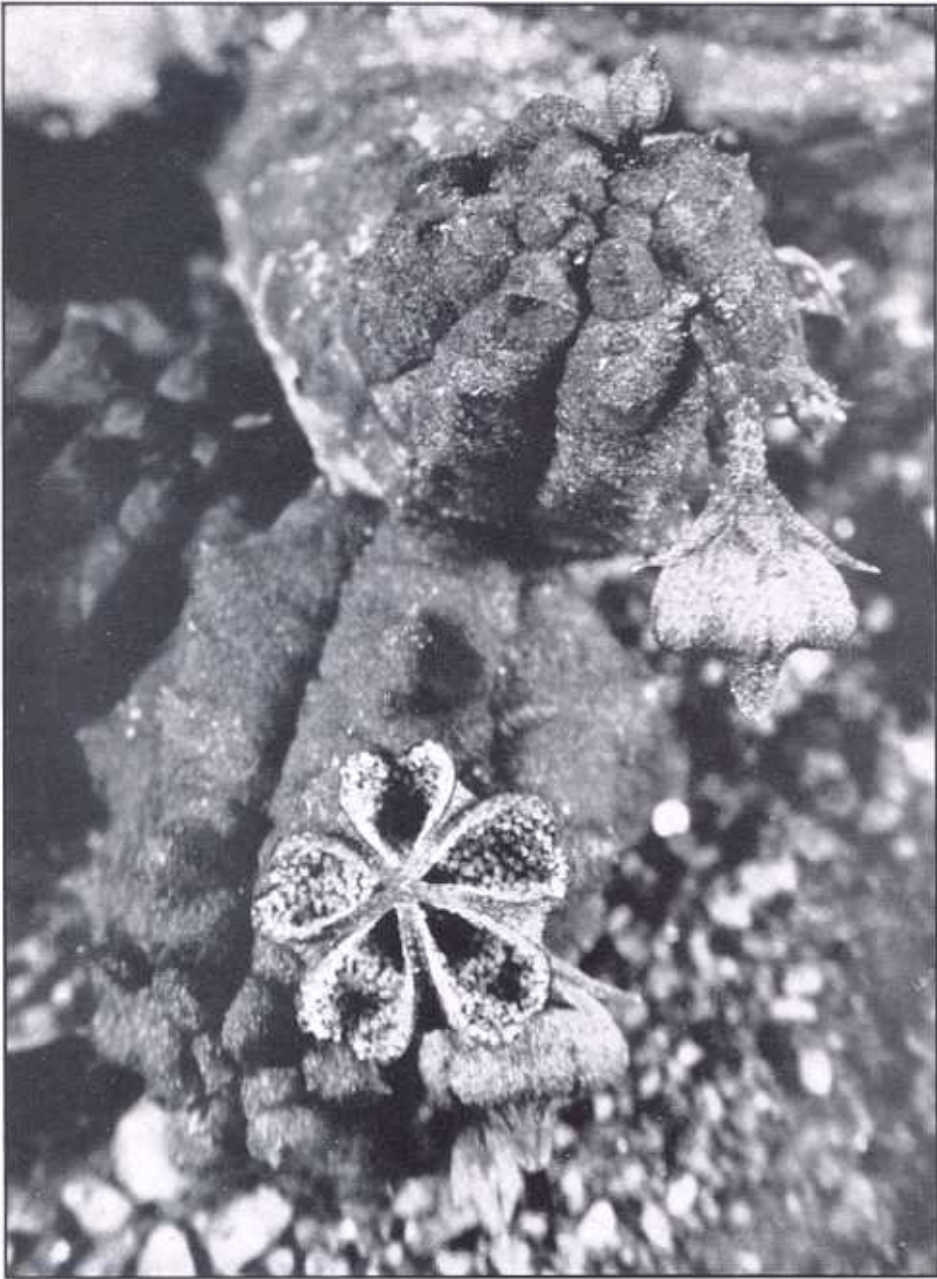


FIG. 725

Pectinaria asperiflora N. E. Brown x 8.

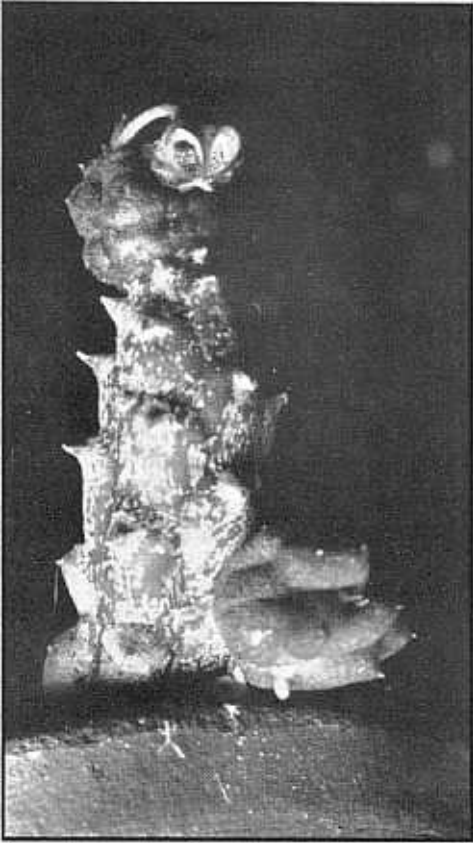


FIG. 726

Pectinaria asperiflora N. E. Brown x 2.5

Photo by F. Wiedemann.

late summer and autumn the plant bears at the tips of the stems small, nodding, subglobose flowers of about the size of a pea, on very short stalks.

"The flower, as in all species of *Pectinaria*, is remarkable for the fact that the five lobes of the corolla are united at their tips, forming a cage-like top to the flower, the inside of which cannot be seen. But *P. asperiflora* differs completely from the other *Pectinarias* once one pries the little cage open and looks inside. Indeed when I first examined the flower I was so utterly astonished at what I saw that I could not help exclaiming: Oh my! For I had never seen anything at all like it before. Externally the flower is utterly unattractive, but

let any one carefully cut a flower open and spread it out without pressure and then examine it under a microscope with a 1-inch objective and I am sure they will be as astonished as I was at the extraordinary structure and beauty of the inner surface of the corolla, which is covered with short columnar processes, not hairs, but rather papillae, that are in turn thickly covered with short spikes, reminding one of the spiked clubs of Gog and Magog, a surface utterly unlike that of any other flower known to me. On account of this rough inner surface of the flower I have named the plant the 'rough-flowered *Pectinaria*,' *P. asperiflora*.

"Apart from its remarkable structure the inner surface of this *Pectinaria* is marvelously beautiful in color when alive. The ground color is pure white, glittering and glistening as if covered with hoar-frost and richly marked with crimson spots, which

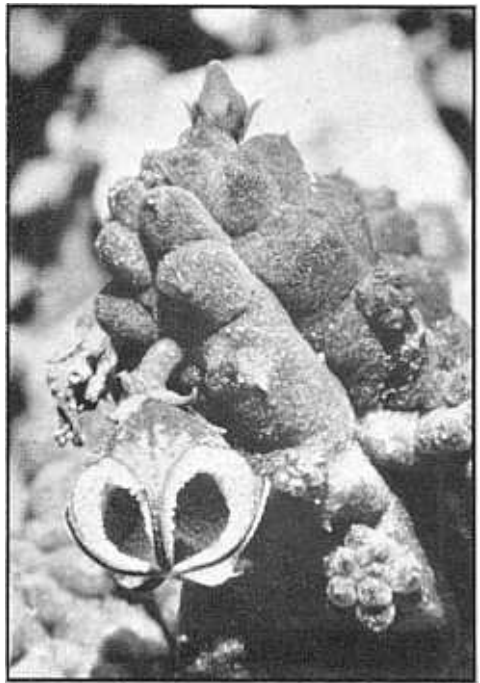


FIG. 727

Pectinaria asperiflora N. E. Brown x 5

Photo by Herbert Lang.

produce an effect that once seen is not likely to be soon forgotten. But, alas! as is the case with most flowers, its beauty cannot be preserved in its entirety. I have mounted one of the flowers as a slide for my microscope, and I treasure it in my 'Goodness Gracious' box, along with several others of my own mounting, the like of which cannot be bought and of which, of course, I am as vain as a peacock, and like to show to my visitors. This flower I have mounted has an outline as spread out something like a bat's wing and it is such an ugly looking dingy blackish object that no one would imagine it to have been of the color I have described. Yet under the microscope the unique structure can still well be seen, the white color is there, but has lost all its sparkling frosted appearance, and the rich crimson has changed to a dark and dingy color something like that of clotted blood. Nevertheless it is still a very beautiful object, causing one to wonder what all this

beauty and extraordinary surface structure, unlike any other in the Floral World, is for, and why it should be hid from sight. Certainly it is not to delight the eyes of man, beast, bird or insect, except such of the latter as are so small as to be able to crawl inside the flower through the chinks between the lobes, and even then the interior is so dimly lighted, from the openings being directed towards the ground, that little of its beauty could be seen. It is usually supposed that any peculiar structure in a flower has some relation to the mode of fertilization, but I hardly believe this can be the case with this plant, as other species of the genus have flowers that are just the same in general details and must be fertilized in the same manner, perhaps even by the same insects, but they lack the peculiar inner surface of the corolla, for although two or three other species have a frosted and slightly rough inner surface, yet it is quite different from that of *P. asperiflora*."

FIG. 728

Pectinaria asperiflora
N. E. Brown

Photo by G. C. Nel of a plant in natural surroundings at Matjesfontein. "This *Pectinaria* usually grows right under the shrubby branches of *Mesembryanthemum spinosum*, so that it is very difficult to find, and almost impossible to photograph, unless one disturbs the mesembs too much and then one does not get a proper idea of how it grows."



DUVALIA Haworth, Syn. Pl. Succ., 44. 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1024):

Plants: succulent leafless herbs of very dwarf habit; *stems* decumbent or erect, in many of the species occasionally subterranean, with the tips rising to the surface, 4 to 6-angled, with spreading teeth, each tooth tipped with a minute deltoid-ovate or subulate acute rudimentary leaf, having a minute denticle (*stipule*) on each side at its base;

Flowers: in small clusters or cymes near the base or middle of the young stems, sometimes solitary;

Calyx: 5-partite;

Corolla: rotate, deeply 5-lobed, with the disk raised into a cushion-like ring (*annulus*) around and supporting the outer corona and its margin reflexed; *lobes* narrowly linear-lanceolate to ovate, folded longitudinally backwards (*replicate*) into vertical plates or the basal half more or less expanded;

Corona: double, arising near the top of the staminal column, stipitate;

Outer corona: flat, entire, more or less pentagonal, rarely 10-angled, resting on the rim or on the sides of the cup formed by the annulus;

Inner corona: lobes turgid, ovoid, more or less pointed at each end, subhorizontal with the dorsal point usually somewhat raised and the inner closely incumbent on the backs of the anthers and sometimes longer than them, but not produced into erect points;

Staminal column: stamens arising at the base of the corolla, united into a tube around the ovary and adnate to the dilated part of the style; anthers without a terminal appendage, inflexed on the table-like top of the style; *pollen-masses* solitary in each anther-cell, horizontal or ascending, pellucid on one margin, attached by very short broad caudicles to lateral wing-like expansions of the pollen-carrier;

Follicles: erect, smooth; *seeds* with a tuft of hairs at one end.

Type species: *Duvalia elegans*.

Total species: 15.

Distribution: One species in southern Arabia; one in Tropical Africa, from the Transvaal to South West Africa; the remainder in the Cape Province and non-tropical South West Africa.

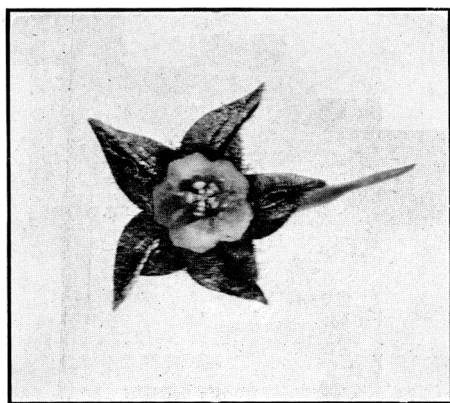


FIG. 729

Duvalia elegans f. *magnicorona* x 2.

(Note the outer corona distinctly lobed).

The genus *Duvalia* was established by Haworth in 1812 and was named for Henri Auguste Duval (1777-1814), a French botanist and student of succulents. In this dedication Haworth was returning a compliment paid to him in 1809, when Duval had named in his honor the interesting genus of *Liliaceae*, *Haworthia* Duval.

Duvalias have flowers distinct from those of other Stapeliads. The outer corona is disk-shaped and it is immediately surrounded by a little annulus or thickening of the corolla fabric. In most *Duvalias* the corona-disk has its edge just resting on the inner rim of the annulus, exactly covering the cup of the corolla within the annulus. In

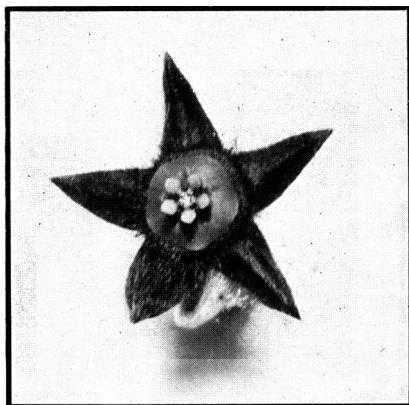


FIG. 730

Duvalia elegans Haworth x 2.

Example of *Duvalia* (Key: I) with corolla pubescent on entire inner surface. Note corolla-lobes not replicate.

other species, and most conspicuously in *Duvalia maculata*, the edge of the corona-disk rests against the inner wall of the annulus, below its rim. In the freak form, *D. elegans* f. *magnicorona*, the corona-disk breaks away from the encircling restriction of the annulus, which it overrides, extending out to the base of the corolla-lobes. The extraordinary thing about this coronal outburst is that, once freed from the normal control of the annulus, the outer corona seems to revert to some pre-Duvalian type and begins to develop lobes, primitive and truncate, it is true, but not unlike the outer corona-lobes of some *Huernias* in shape.

Another curious characteristic of *Duvalias* is their frequent habit of folding back their corolla-lobes into vertical plates. In *D. angustiloba* this is carried so far that the lobes seem about to fold up entirely and vanish from view. The replicate character of the lobes is a useful index in classification, for its extent remains fairly constant within individual species. We have made it a primary factor in our key, along with

the presence or absence of pubescence and ciliation on the corolla, and the color of the outer corona.

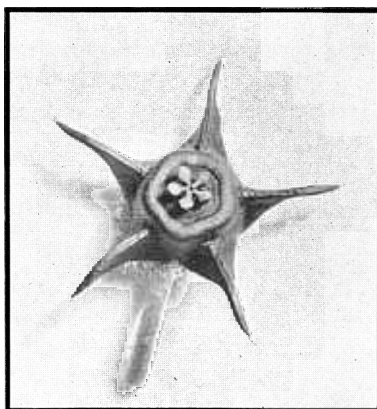


FIG. 731

Duvalia modesta N. E. Brown x 2.

Example of *Duvalia* (Key: III) with corolla not pubescent. Note corolla-lobes replicate to half-way down.

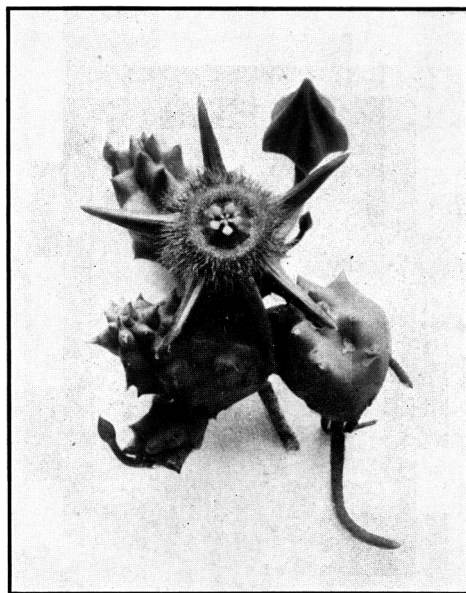


FIG. 732

Duvalia corderoyi N. E. Brown x 1.

Photo by S. Tapscott.

Example of *Duvalia* (Key: II) with corolla pubescent on annulus only. Note corolla-lobes replicate to the base.

KEY TO THE GENUS DUVALIA

- I. Corolla pubescent on entire inner surface:
 - A. Corolla-lobes slightly replicate towards apex . . . 1. *D. elegans* ($\frac{1}{2}$ - $\frac{3}{4}$ in.)
 - B. Corolla-lobes replicate 2. *D. pubescens* ($\frac{2}{3}$ -1 in.)
- II. Corolla pubescent on annulus only (or including base of lobes):
 - A. Corolla-lobes not replicate:
 1. Corolla over 1 in. in diameter 3. *D. sulcata* ($1\frac{3}{4}$ in.)
 2. Corolla under 1 in. in diameter 1 (a). *D. elegans* var. *seminuda* ($\frac{1}{2}$ - $\frac{3}{4}$ in.)
 - B. Corolla-lobes replicate:
 1. Corolla dull olive-green 4. *D. corderoyi* ($1\frac{1}{4}$ -2 in.)
 2. Corolla dark chocolate:
 - a. Pubescence on annulus rim only 15 (b). *D. radiata* var. *hirtella* ($\frac{3}{4}$ - $1\frac{1}{6}$ in.)
 - b. Pubescence on entire annulus 2 (a). *D. pubescens* var. *major* ($1\frac{1}{6}$ in.)
- III. Corolla not pubescent, or minutely so on rim of annulus only:
 - A. Corolla-lobes not replicate:
 1. Corolla-lobes ciliate 5. *D. polita* ($1-1\frac{1}{4}$ in.)
 2. Corolla-lobes not ciliate 5 (a). *D. polita* var. *transvaalensi*. ($1-1\frac{1}{4}$ in.)
 - B. Corolla-lobes replicate half-way down:
 1. Outer corona red-brown 6. *D. modesta* ($\frac{1}{2}$ - $\frac{3}{4}$ in.)
 2. Outer corona canary-yellow 7. *D. pillansii* ($1-1\frac{1}{6}$ in.)
 - C. Corolla-lobes replicate to base:
 1. Corolla cream color, tips of lobes pale purple 8. *D. parviflora* ($\frac{1}{2}$ in.)
 2. Corolla yellow-green, tips of lobes purplish-green 9. *D. emiliana* ($1-1\frac{1}{4}$ in.)
 3. Corolla purple-brown to dark chocolate:
 - a. Outer corona white 10. *D. angustiloba* ($\frac{3}{4}$ -1 in.)
 - b. Outer corona yellow 11. *D. maculata* ($\frac{7}{12}$ - $\frac{5}{6}$ in.)
 - c. Outer corona green 12. *D. caespitosa* ($\frac{2}{3}$ - $\frac{3}{4}$ in.)
 - d. Outer corona purple-reddish-brown shades:
 - i. Corolla not over $\frac{3}{4}$ in. in diameter 13. *D. compacta* ($\frac{2}{3}$ - $\frac{3}{4}$ in.)
 - ii. Corolla over $\frac{3}{4}$ in. in diameter:
 - + Corolla-lobes ciliate with clavate hairs 14. *D. reclinata* ($\frac{7}{8}$ - $1\frac{3}{4}$ in.)
 - + + Corolla-lobes ciliate with mostly simple hairs 15. *D. radiata* ($\frac{5}{6}$ - $1\frac{1}{6}$ in.)

1. *Duvalia elegans* (Masson) Haworth, Syn. Pl. Succ., 44. 1812.*Stapelia elegans* Masson, Stap. Nov., 19. 1796.*Stapelia radiata* Jacquin, Stap., t. 12. 1806-19. *Nec* Sims, 1803.*Stapelia jacquiniana* Schultes, Syst. Veg., vi. 45. 1820.*Duvalia jacquiniana* Sweet, Hort. Brit., 1 Ed., 276. 1827.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1028):

Stems: decumbent and ascending, sometimes descending under the ground, $\frac{3}{4}$ to $1\frac{3}{4}$ in. long, 4 to 6 lin. thick, oblong, with 4 to 5 obtuse tuberculate-denticulate angles, glabrous, dull green or purplish-tinted;*Flowers*: 2 to 3 together near the base of the stems, developing successively;*Pedice*l: 5 to 10 lin. long, glabrous;*Sepals*: 1 to $1\frac{1}{2}$ lin. long, lanceolate, acute, glabrous;*Corolla*: $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter, rather flat, dark purple-brown, shining, pilose all over the inner face with rather long soft purple hairs 1 to $1\frac{1}{2}$ lin. long, glabrous on the back; *lobes* $2\frac{1}{2}$ to 3 lin. long, $1\frac{3}{4}$ to $2\frac{1}{4}$ lin. broad at the base, ovate or deltoid-ovate, acute or shortly acuminate, flattish at the basal part, slightly replicate towards the apex; *annulus* not very evident, scarcely raised above the level of the fold of the lobes;*Outer corona*: $2\frac{1}{4}$ to $2\frac{1}{2}$ lin. in diameter, almost covering the annulus; nearly circular, obscurely pentagonal or rarely shortly 5-lobed, nearly flat, dark red-brown;*Inner corona*: lobes pale brownish-yellow.

Type locality: Cape Prov.: "Karoo."

Distribution: Robertson Distr.: near Ashton; Port Elizabeth Distr.; Oudtshoorn Distr.: near Calitzdorp.

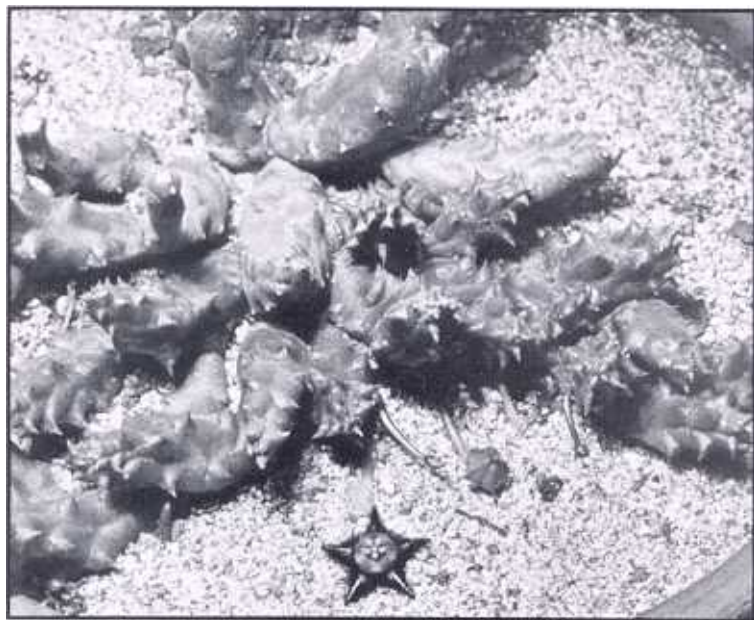


FIG. 733

Duvalia elegans Haworth x 1.

Duvalia elegans

The "elegant *Duvalia*" is the most hairy member of the genus, the entire inner corolla face of its flowers being pubescent with soft purple hairs. The corolla-lobes open out broadly and are rarely at all replicate. Frequently the flowers rest flat on the ground, face up, separated from the stems by the full length of the pedicels. The type was discovered by Masson in the Karroo.

There are two varieties recognized, the var. *namaquana*, received by Sir Henry Barkly from Little Namaqualand, and the var. *seminuda*, discovered by Mr. Pillans in the Riversdale district, at the southerly edge of the Little Karroo. A freak form of the type (*D. elegans* f. *magnicorona*, No. 178-1 in the White and Sloane Collection) was described on page 741 (Fig. 729).

Var. a. *Duvalia elegans* var. *seminuda* N. E. Brown, Flora Cap., iv. i. 1028. 1909.

(Description by Dr. Brown, l.c.):

Stems: 2 to 4 in. long;

Corolla: having a frosted appearance when viewed with a lens (*Pillans*); lobes without hairs on the apical half, those on the margins greyish, flat, wavy, the others purple;

Otherwise as in the type.

Type locality: Cape Prov.: Riversdale Dist.: near Riversdale.

Distribution: Not otherwise known.

Var. b. *Duvalia elegans* var. *namaquana* N. E. Brown, Flora Cap., iv. i. 1028. 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes $3\frac{1}{2}$ to 5 lin. long, replicate nearly to the base; *annulus* very distinctly raised above the level of the fold of the lobes.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not further known.



FIG. 734

Duvalia elegans Haworth x 1.

Photo: G. W. Reynolds, Johannesburg.

2. *Duvalia pubescens* N. E. Brown, Flora Cap., iv. i. 1029. 1909.

(Description by Dr. Brown, l.c.):

Stems: decumbent, $\frac{1}{2}$ to 2 in. long, $\frac{1}{3}$ to $\frac{2}{3}$ in. thick, obtusely 4 to 5-angled, dull dark green; angles with horizontal stout conical teeth 1 to 2 lin. long;

Flowers: 2 to 4, successively developed at the middle or upper part of the young stems;

Pedicel: $\frac{1}{3}$ to $\frac{1}{2}$ in. long, about 1 lin. thick;

Sepals: 1 to $1\frac{1}{2}$ lin. long, ovate, very acute or acuminate;

Corolla: $\frac{2}{3}$ to nearly 1 in. in diameter, pubescent on the whole of the inner face, but usually more densely on the annulus than on the lobes, with short soft simple hairs $\frac{1}{8}$ to $\frac{1}{2}$ lin. long, dark chocolate; *lobes* very spreading, with recurved tips, 3 to 4 lin. long, replicate to the base into vertical plates 1 to $1\frac{1}{4}$ lin. deep at the base, not ciliate; *annulus* $3\frac{1}{2}$ to 4 lin. in diameter, 1 to $1\frac{1}{3}$ lin. high, very obtusely or obscurely pentagonal, with vertical sides, and the sinuses between the lobes reflexed to the pedicel;

Outer corona: $2\frac{1}{4}$ to $2\frac{1}{2}$ lin. in diameter, pentagonal, dull reddish-brown.

Type locality: Unknown.

Distribution: Cape Prov.: Little Namaqualand: Richtersveld: Steinkopf; Griqualand West: Herbert Distr.: Mazelsfontein; South West Africa: Great Namaqualand: Aus.

The "pubescent *Duvalia*" is of unknown origin. It was cultivated at Cambridge, England, as early as 1881, but was not described and named until the publication of the Flora Capensis in 1909, having been re-discovered meanwhile by Mr. Ayres in Little Namaqualand. It is the only *Duvalia* which is hairy on the entire inner surface of

the corolla, except *D. elegans*, and it can be easily distinguished from that plant, because its hairiness is little more than a soft pubescence and the corolla-lobes do not remain broadly flat, but are noticeably replicate. There is a variety (also from Little Namaqualand, discovered by Mr. Scully) in which the pubescence is restricted to the annulus and the base of the lobes:

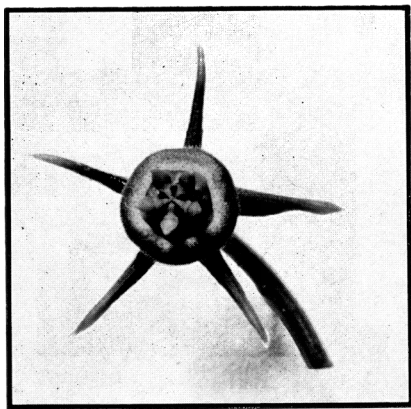


FIG. 735

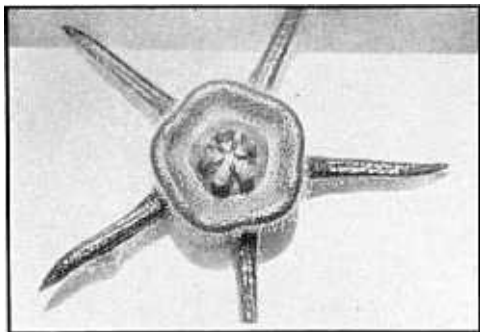
Duval. pubescens N. E. Brown x 1.5

FIG. 736

Duvalia pubescens N. E. Brown x 2.25

Photo by E. Rusch, Jr., of a flower from Aus, Great Namaqualand.

Var. a. ***Duvalia pillansii*** var. **major** N. E. Brown, *Flora Cap.*, iv. i. 1029. 1909.

(Description by Dr. Brown, l.c.):

Flowers: from near the tips of the stems;

*Pedice*l: $\frac{1}{2}$ to $\frac{3}{4}$ in. long;

Sepals: $1\frac{3}{4}$ lin. long, lanceolate-attenuate;

Corolla: about $1\frac{1}{6}$ in. in diameter; *lobes* 5 to $5\frac{1}{2}$ lin. long, replicate into vertical plates 1 lin. deep, thinly pubescent on the basal half, glabrous on the apical half;

Otherwise as in the type.

Type locality: Cape Prov.: Little Namaqualand: without precise locality.

Distribution: Not further known.

3. *Duvalia sulcata* N. E. Brown, Kew Bull., 193. 1910.

(Description by Dr. Brown, l.c., translated from the Latin):

Stems: decumbent, 2.5 to 6.5 cm. long, 1.2 to 1.8 cm. thick, 4-angled, glabrous, whitish-green mottled with purple, with subulate teeth 6 to 10 mm. long;

Flowers: 1 to 3, in sub-fascicles;

*Pedice*l: 2 to 2.8 cm. long, 1.5 mm. thick, glabrous;

Sepals: 3 mm. long, ovate-lanceolate, acute, glabrous;

Corolla: about 4.5 cm. in diameter, brownish-red, densely covered with long pale rose hairs on the annulus; *lobes* 1.6 to 1.8 cm. long, 1.2 cm. broad, ovate, acute, convex (not replicate), spreading, 5-furrowed, rugose on the apex, glabrous, ciliate at the base with long vibratile clavate purple hairs; *annulus* 1.2 to 1.4 cm. in diameter, circular;

Outer corona: circular, smooth, contained within the annulus, purplish marked near the margin by a yellowish ring, glabrous;

Inner corona: lobes 2 mm. long, erect, ovoid, acute, slightly incurved at the apex, white.

Type locality: Southern Arabia: without precise locality.

Distribution: Unknown, probably Hadramaut.

Sent to the Royal Botanic Gardens at Kew by the English traveler, James Theodore Bent, on his return from his last journey to Southern Arabia, 1896-97. Its nearest ally is *Duvalia corderoyi*, which it almost rivals in the size of its flowers, $1\frac{3}{4}$ inches. It differs in the stems being 4-angled and handsomely mottled, and the flowers having the corolla-lobes convex, but not at all replicate. They are marked on the inner face with 5 grooves, whence the name, the "furrowed *Duvalia*." The plant is not in cultivation at the present time.

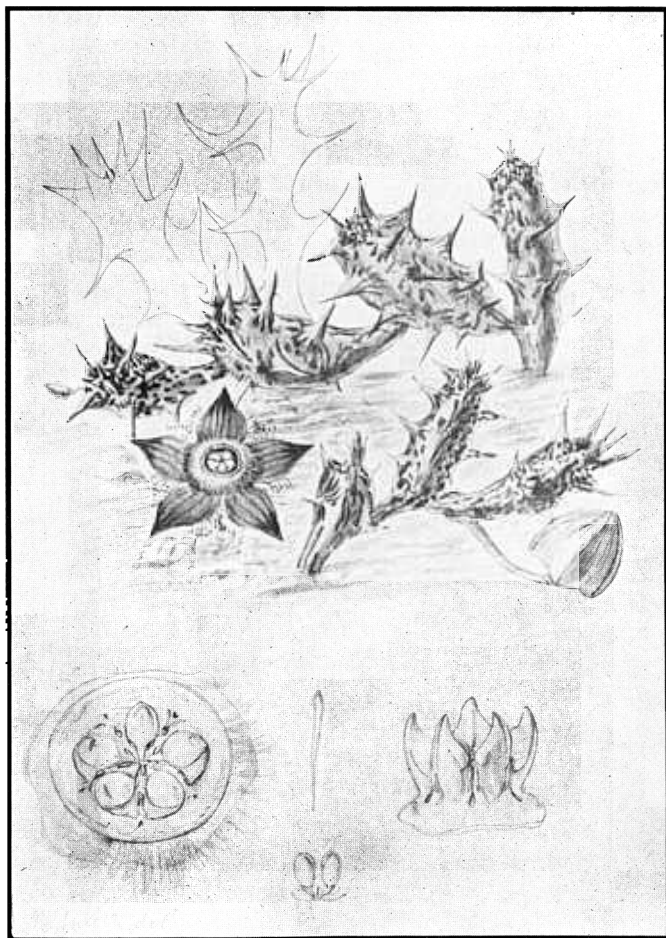


FIG. 737

Duvalia sulcata N. E. Brown .
x 0.55

Drawing of the type plant by N. E. Brown. Reproduced by permission of the Bentham Trustees.

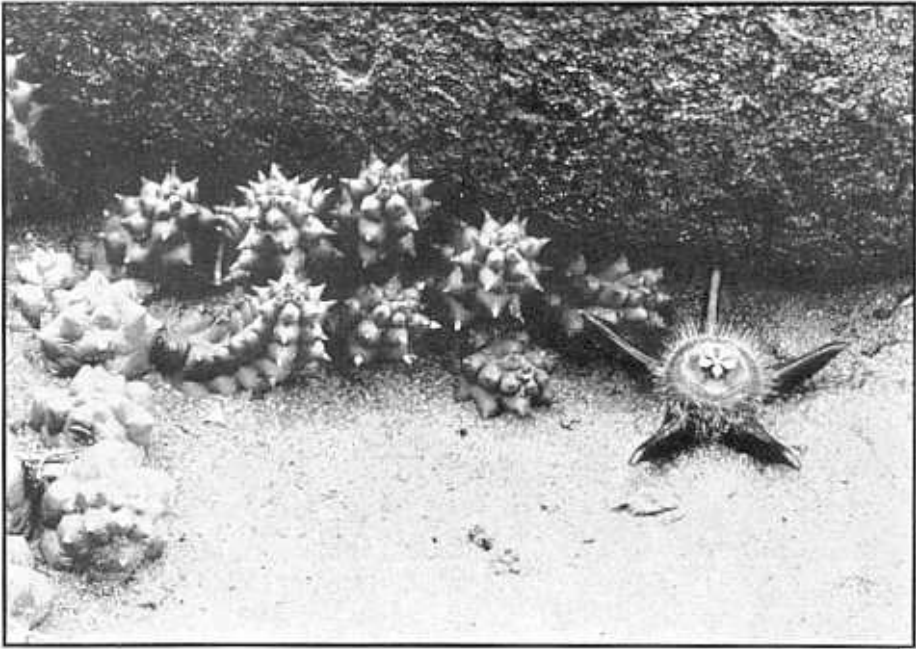


FIG. 738

Duvalia corderoyi N. E. Brown x 1.

Photo by S. Tapscott.

4. *Duvalia corderoyi* (Hooker fil.) N. E. Brown, Bot. Mag., sub t. 6245. 1876.

Stapelia corderoyi Hooker fil., Bot. Mag., t. 6032. 1874.

(Description by Dr. Brown, Flora Cap., iv. i. 1027):

Stems: $\frac{1}{2}$ to $1\frac{1}{4}$ in. long, about $\frac{3}{4}$ in. thick, globose or oblong, with 6 very obtuse or somewhat obscure tuberculate-dentate angles, dull green, tinged with purple where exposed to the sun;

Flowers: 2 to 4 together at about the middle or near the base of the young stems;

Pedicel: $\frac{1}{2}$ to 1 in. long, 1 lin. thick;

Sepals: 2 to $2\frac{1}{2}$ lin. long, lanceolate, acute, glabrous;

Corolla: $1\frac{1}{4}$ to 2 in. in diameter; *lobes* very spreading, $\frac{1}{2}$ to $\frac{2}{3}$ in. long, sometimes closely replicate for $\frac{2}{3}$ of their length with the basal part expanded, sometimes closely replicate only at the tips and openly at the other part, glabrous, ciliate along the basal $\frac{2}{3}$ with long vibratile clavate purple hairs, light or dull olive-green, tinged towards the tips with darker, or dull reddish-brown, sometimes with a faint green tint; *annulus* 5 to 6 lin. in diameter, obscurely 5-angled, densely covered with long soft purple hairs;

Outer corona: 3 to $3\frac{1}{2}$ lin. in diameter, pentagonal, dull brick-red, paler at the angles;

Inner corona: lobes ovoid, dorsally obtuse, with the inner apex narrowed into a short linear point, buff-colored.

Type locality: Cape Prov.: Aliwal North Distr.: near the Orange River.

Distribution: Also from Uitenhage Distr.: Redhouse; Middelburg Distr.: near Conway; 10 miles east of Rosmead; Steynsburg Distr.: under bushes near Steynsburg; Maraisburg Distr.: just south of Hofmeyr; Cradock Distr.; Prieska Distr.

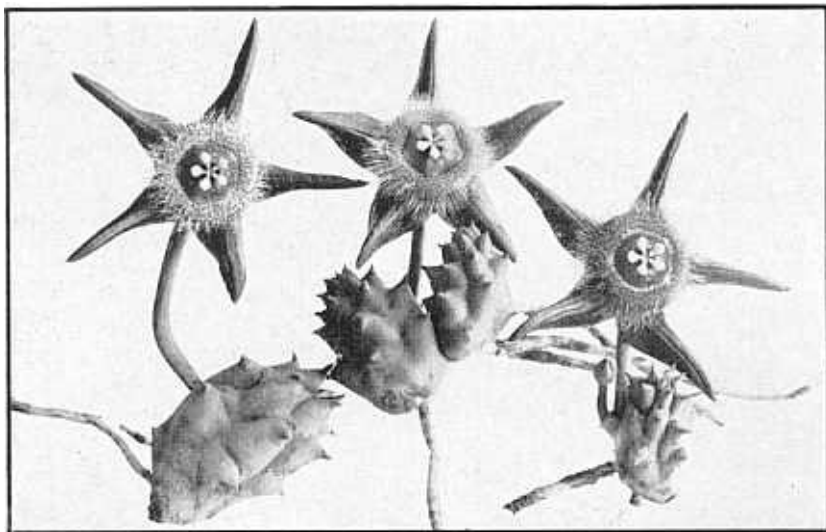


FIG. 739

Duvalia corderoyi N. E. Brown x 1.

Photo: G. W. Reynolds, Johannesburg, of flowers from three plants collected near Hofmeyr, C. P. Note differences in markings on the annulus, in the shape of the coronal disk, degree of hairiness, length and grooving of corolla-lobes, and other details.

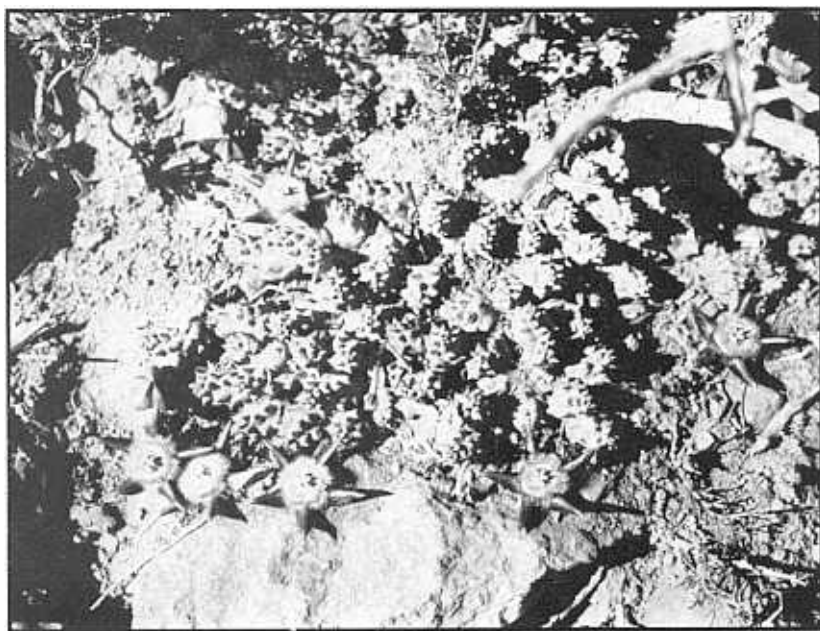


FIG. 740

Duvalia corderoyi N. E. Brown x 0.3

Photo: G. W. Reynolds, of a plant in natural surroundings under bushes on a rocky slope 2 miles south-east of Hofmeyr, C. P.

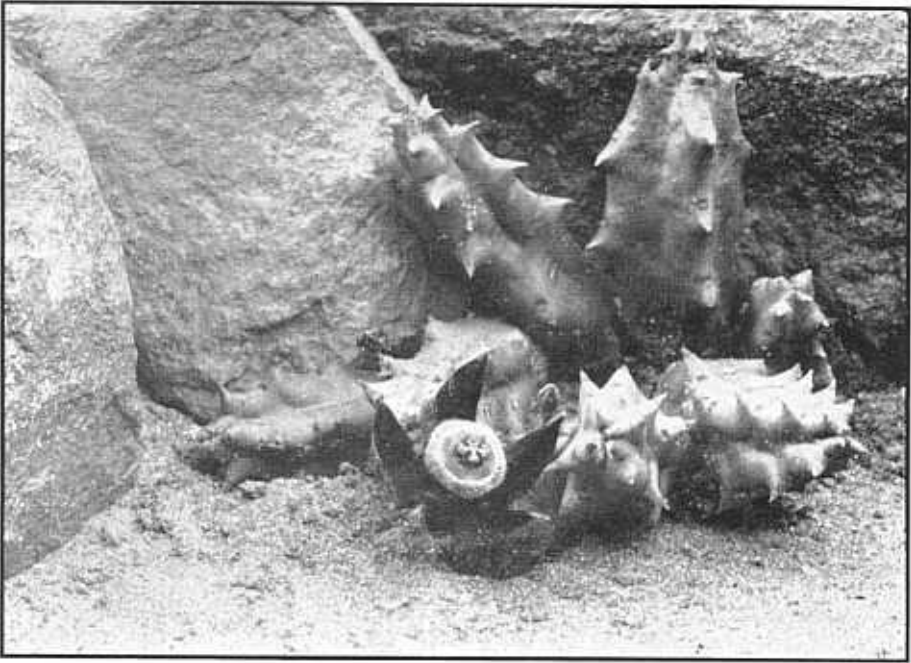


FIG. 741

Duvalia sp. unidentified x 1.

Photo by S. Tapscott.

"Corderoy's *Duvalia*" was discovered by James Burke on his journey with Carl Zeyher to the Orange River, 1840-41, and was named by Sir J. D. Hooker for Justus Corderoy of Didcot, Berkshire, England, "an old and an eminent cultivator of succulent

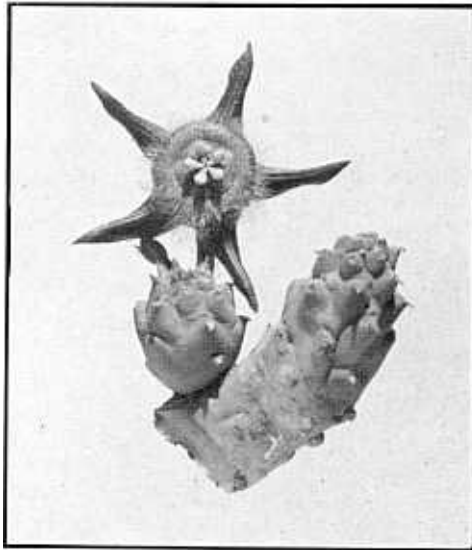


FIG. 742

Duvalia corderoyi N. E. Brown x 1.

From Hofmeyr, Maraisburg district. Photo:
G. W. Reynolds, Johannesburg.

plants.” The flowers are the largest possessed by any *Duvalia*, sometimes as much as two inches in diameter. They are recognizable by the dull olive-green tint of the corolla and the dense covering of soft purple hairs on the annulus only. The species is a variable one, alike as to the details of its coloration, the length of the hairs upon the annulus and the degree to which the corolla-lobes are replicate.

The flower shown in Fig. 741 is probably related to *D. corderoyi*, but the pubescent white annulus is different from anything we have seen in the genus. This plant was collected by S. Tapscott some years ago, but we have no details as to its habitat and no exact description. We believe, however, that it deserves to rank as a distinct species or at least as a very distinct variety of *D. corderoyi*.

FIG. 743
Duvalia corderoyi N. E. Brown x 0.75
From the collection of David Pringle.



FIG. 744
Duvalia corderoyi N. E. Brown x 1
Photo: G. W. Reynolds, Johannesburg.

5. *Duvalia polita* N. E. Brown, Gard. Chron., vi. 130. 1876.

Stapelia polita Hort. angl., ex N. E. Brown, Gard. Chron., vi. 130. 1876.

Stapelia echinata Hort. angl., ex N. E. Brown. Gard. Chron., vi. 130. 1876.

Duvalia dentata N. E. Brown, Kew Bull., 265. 1895.

(Description by Dr. Brown, Flora Cap., iv. i. 1026):

Stems: rather elongated, lax, decumbent, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, about $\frac{1}{2}$ in. thick, obtusely 6-angled, with subulate-pointed teeth $2\frac{1}{2}$ to 4 lin. long;

Flowers: 3 to 4 together, successively developed;

*Pedice*l: about 1 in. long, rather slender, purplish;

Sepals: about $\frac{1}{4}$ in. long, lanceolate-subulate, dingy green;

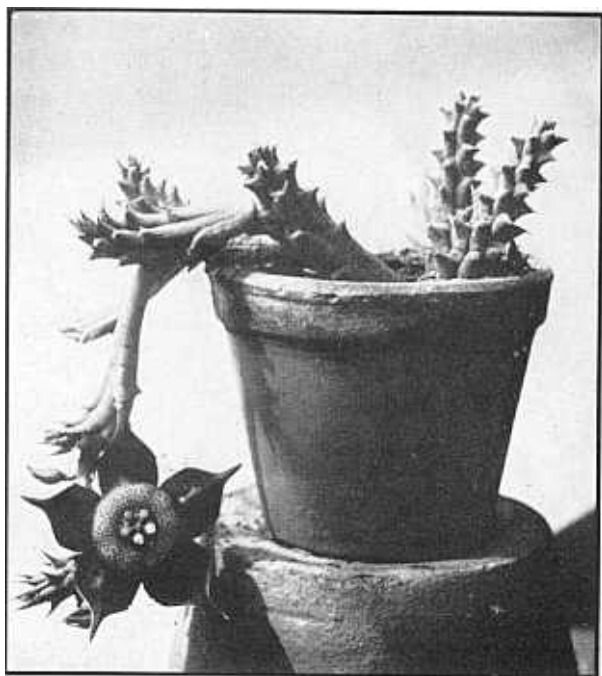
Corolla: 1 to $1\frac{1}{4}$ in. in diameter, dull green on the back, rich purplish-chocolate on the inner face, very smooth and shining on the basal $\frac{2}{3}$ of the lobes, not shining elsewhere; lobes erectly spreading, 4 to 5 lin. long and nearly as broad, ovate, acuminate, with the sides but slightly folded back, glabrous on both sides, ciliate on the basal half with vibratile clavate purple hairs $\frac{2}{3}$ lin. long; annulus about $\frac{1}{3}$ in. in diameter and 1 lin. high, pentagonal, minutely puberulous;

Outer corona: $2\frac{1}{2}$ lin. in diameter, pentagonal, chocolate-red;

Inner corona: lobes dull orange-red.

Type locality: Bechuanaland Protectorate: Ngamiland: 30 miles north-west of Kobis.

Distribution: South West Afr.: Hereroland: near Otavi and south of the Auasberge; Transvaal: Pretoria Distr.; Lydenburg Distr.: Waterval Valley, near Buffelsvlei; Potgietersrust Distr.: Kwarries Hoek; Waterberg Distr.: Naboomspruit, Warmbaths, etc.; Marico Distr.: near Zeerust; Natal: Muden Valley; Umlaas Valley; Portuguese East Africa: Massengiri.



Duvalia polita N. E. Brown x 1.

A form with spotted annulus and uniformly colored lobes, contrasting with the spotted lobes and uniformly colored annulus of Fig. 749. Photo by F. Wiedemann.

Var. a. *Duvalia polita* var. *transvaalensis* (Schlechter), comb. nov.

Duvalia transvaalensis Schlechter, Engler: Jahrb., xx. Beibl., 51. 1895.

Duvalia transvaalensis var. *parviflora* L. Bolus, Ann. Bolus Herb., i. 194. 1915.

(Description by Dr. E. P. Phillips, Flow. Pl. So. Afr., t. 472. 1932):

Stems: up to 6 cm. high, branched, erect, slender, 6-angled, with the angles bearing fleshy spines, glabrous; spines with 2 minute teeth at the base;

Flowers: few, opening in succession at the bases of the young growths;

*Pedice*l: 3 cm. long, glabrous;

Sepals: ovate to linear-lanceolate, acuminate, glabrous;

Corolla: yellowish-green and profusely spotted with purple-brown above, pale green beneath, 3 cm. in diameter, glabrous; *lobes* sub-erect, 1.1 cm. long, 0.8 cm. broad, ovate, acute; *disk* 1.2 cm. in diameter, purple-brown, raised 6 mm. above the insertion of the lobes, minutely papillate;

Outer corona: dark red, 5 mm. in diameter, sub-pentagonal, adnate to the disk;

Inner corona: of 5 reddish-pink fleshy lobes; lobes 1 mm. long, incumbent on the backs of the anthers, with a short more or less erect dorsal projection.

Type locality: Transvaal: Sandy places near Klipdam, 4600 ft. elevation.

Distribution: Also in Transvaal: Waterberg Distr.: Naboomspruit; Pietersburg Distr.: in small clumps near the tropic line; Zoutpansberg Distr.: Farm Chapudi near Waterpoort; Bechuanaland Protectorate: Kalahari; Griqualand West: near Boetsap.

The "polished Stapelia" was discovered by the English explorer, Thomas Baines, in Ngamiland about 1870, and the "Transvaal variety" by Dr. R. Schlechter near Klipdam,

Transvaal, on Feb. 14, 1894. The type and the variety together cover an extraordinarily long range of 1500 miles or more, almost directly across the African continent, now above and now below the tropic line. It is the only tropical *Duvalia* in Africa, for the other tropical species, *D. sulcata*, is restricted to Southern Arabia. The distribution of *D. polita* consists of localized colo-



FIG. 746

Duvalia polita N. E. Brown x 0.75

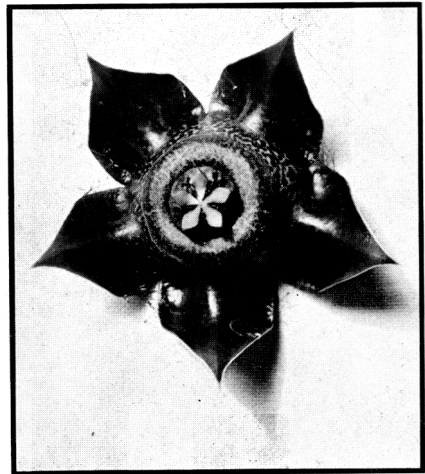


FIG. 747

Duvalia polita N. E. Brown x 2.



PLATE XX.

Duvalia polita var. *transvaalensis*, comb. nov.

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1932.

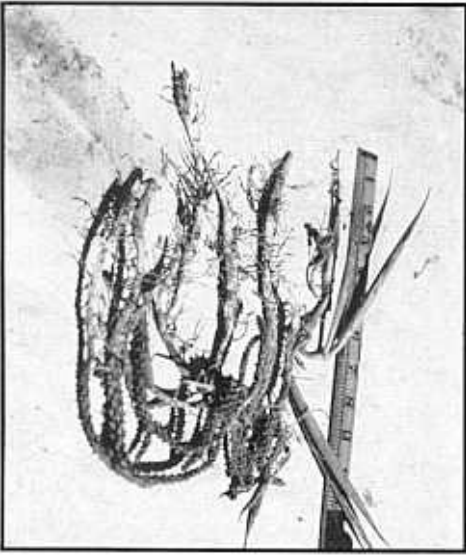


FIG. 748. *Duvalia polita* N. E. Brown

Photo by G. C. Nel of a plant from Massengiri, near the Olifants River, Portuguese East Africa, where the river issues from the Lebombo Mts. The plant had put out underground stems through the sandy soil, as this species commonly does, besides which it penetrated with certain stems straight down into the soil to a greater than customary depth after the fashion of a "tap-root."

nies, some separated from their nearest neighbors by many miles. The habit of the plants is quite different from that of other *Duvalias*. The stems are two inches or more in height, erect, branching from the base and often making underground growth of several yards, then popping up to establish new plants. The flowers are next in size to those of *D. corderoyi* and *D. sulcata*. In the type the inner corolla surface is uniformly purplish-chocolate, the base of the lobes very shiny, whence the name of the "polished Duvalia." Photographs of the corolla usually show reflections of light from this polished surface much as those of *Huernia transvaalensis* do from the shining annulus of that species.

The principal differences between the type of *D. polita* and the var. *transvaalensis* are that in the type the corolla-lobes are ciliate, uniformly colored and often somewhat folded back at their lower edges, though not fully replicate; whereas in the

variety the corolla-lobes have no ciliation, they are conspicuously mottled in purple-brown on a yellowish-green ground, and their edges do not fold back at all. But while these distinctions are considerable and have heretofore led to the two plants being considered as separate species, they also on occasion show intermediate gradations so bewildering that we have felt they must be combined within the compass of a single species. Further we have felt it necessary to invoke a new intermediate form (*Duvalia polita* f. *intermedia*) to provide for these sporadic links between the type and the variety.

The characters of this intermediate form are as in the type, except that the ciliation of the corolla-lobes is not as regular, in some cases consisting of only one or two vibratile clavate purple hairs near the base on each side of the lobes, while the color of the corolla is not uniform, but presents yellow-green spots and areas of varying size on the annulus and on the base and sometimes on the entire lower half of the lobes.

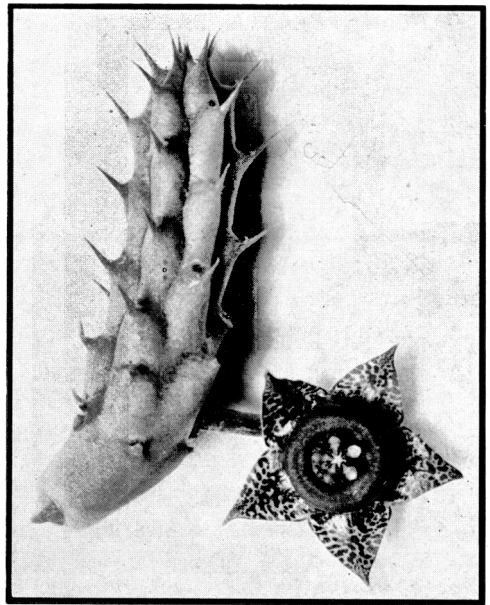


FIG. 749. *Duvalia polita* var. *transvaalensis*, comb. nov. x 1.25

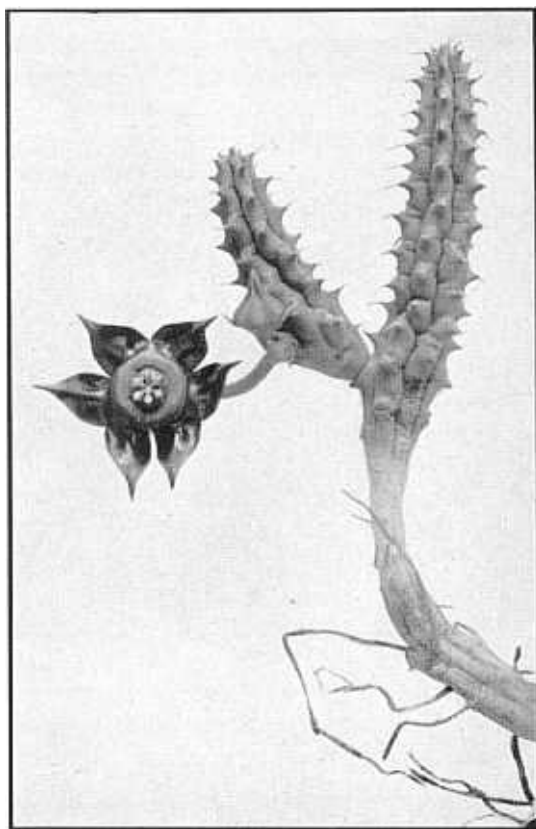


FIG. 750

Duvalia polita N. E. Brown x 0.9

A six-lobed flower from Lydenburg district, Transvaal.
Photo: G. W. Reynolds, Johannesburg.

Although there is a complete distinction between the type and the var. *transvaalensis* in their pure forms, both as to ciliation and corolla markings, yet there is hardly any intermediate permutation which is not sometimes found and all such transitions may well be referred to the f. *intermedia*. There also occurs some variation in the size of the flowers, so that a "small-flowered variety" (var. *parviflora*) of the *transvaalensis* strain was described in 1915, with the corolla-lobes measuring 0.8 cm. instead of 1.1 cm., but as gradations of size are not infrequent we have not maintained this variety.

The habitats of the type and variety overlap at so many points that it is possible

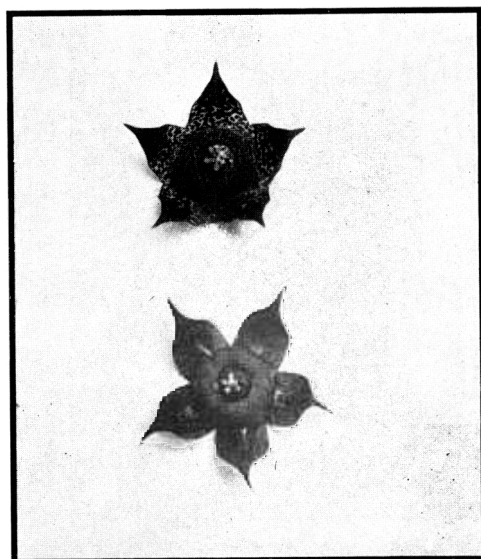


FIG. 751

Duvalia polita N. E. Brown (below) and the f. *intermedia* x 1.

In both flowers the corolla-lobes are ciliate on the basal half.

some localities cited in the distribution of the one refer more accurately to the other. In this connection we quote a letter of J. C. J. Knobel: "Near Zeerust, Transvaal, and also in and about Molepolole in the Bechuanaland Protectorate, I have seen no plants with spotted flowers, but as one goes west into the Kalahari from Molepolole plants are found with flowers that are more or less spotted. Still further west (100 to 150 miles from Molepolole) the markings of the flowers increase and are more pronounced. Plants with spotted flowers are also found in some districts of the Transvaal. I have not noticed the presence or absence of ciliation on the lobes of differently marked flowers." Of plants collected in the Waterval Valley, Lydenburg, Transvaal, G. W. Reynolds writes: "They always grow in fine red sand, in raised positions under low thorn bushes; never in exposed open veld. The plants usually have 5 to 10 stems, never forming groups or patches and they are not too plentiful."

6. *Duvalia modesta* N. E. Brown, Flora Cap., iv. i. 1028. 1909.

(Description by Dr. Brown, l.c.):

Stems: $\frac{1}{2}$ to 1 in. (or more?) long, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, ovoid or oblong, with 4 to 5 obtuse tuberculate-toothed angles, glabrous;

Flowers: 2 to 3 together at the middle of the young stems, developing successively;

*Pedice*l: $\frac{1}{3}$ to $\frac{1}{2}$ in. long, glabrous;

Sepals: 1 to $1\frac{1}{2}$ lin. long, lanceolate, acute, glabrous;

Corolla: $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter, dark chocolate; *lobes* $2\frac{1}{2}$ to 3 lin. long, with the margins closely replicate at the apical half and reflexed-spreading at the basal part, ovate when flattened out, acuminate, ciliate for half of their length with soft fine simple purple hairs $\frac{1}{2}$ to 1 lin. long, otherwise quite glabrous; *annulus* about $2\frac{1}{2}$ lin. in diameter, $\frac{1}{2}$ lin. high, obtusely pentagonal, glabrous;

Outer corona: $1\frac{1}{2}$ to 2 lin. in diameter, obtusely pentagonal, apparently dark reddish-brown;

Inner corona: lobes apparently reddish.

Type locality: Cape Prov.: Aberdeen Distr.: near Aberdeen Road.

Distribution: Also from Somerset East Distr.: near Pearston; Golden Valley; Albany Distr.: karroid veld 8 to 10 miles north-west of Grahamstown, on Piggott Bridge Road; Cradock Distr.

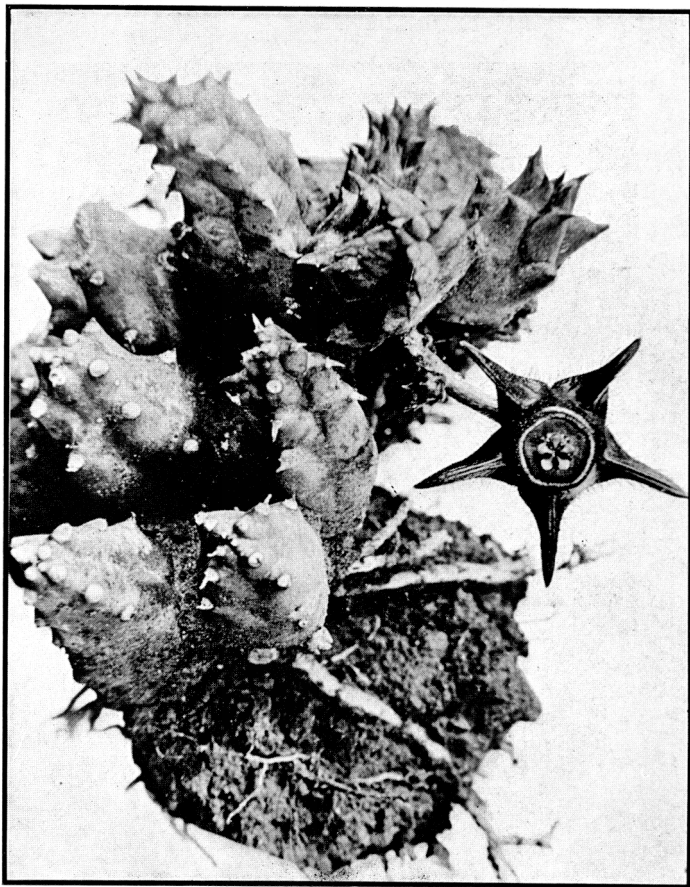


FIG. 752
Duvalia modesta N. E. Brown x 2.
Photo by R. A. Dyer.



FIG. 753

Duvalia modesta N. E. Brown x 1.

Photo: G. W. Reynolds, Johannesburg, of a plant growing in natural surroundings near Bruintjes Hoogte, 22 miles west of Somerset East, C. P.

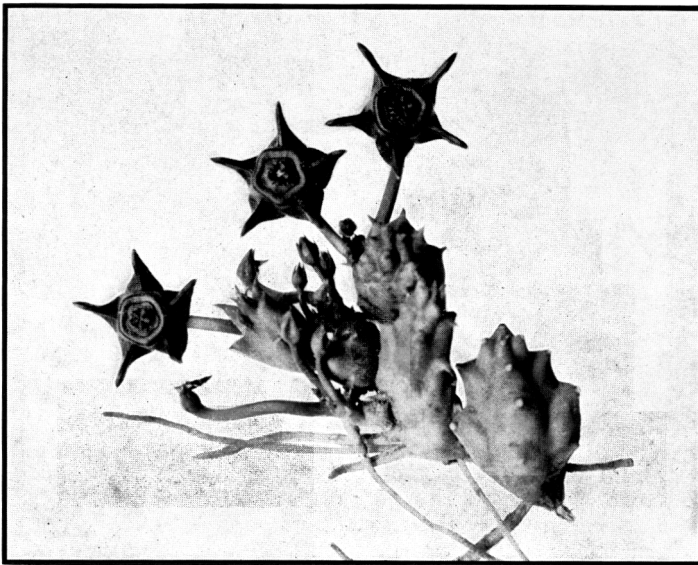


FIG. 754

Duvalia modesta N. E. Brown x 1.

Photo: G. W. Reynolds, of a flowering plant collected at Bruintjes Hoogte, C. P.



PLATE XXI.

Duvalia modesta N. E. Brown

From the original water color drawing by Miss Cythna Letty
for the Flowering Plants of South Africa, 1935.

The "modest *Duvalia*" was discovered by Mr. Pillans in the Great Karroo, near Aberdeen Road. It differs from *Duvalia pillansii* in the smaller flowers, in the uniform dark chocolate color of the corolla (which does not have the characteristic narrow white ring of *D. pillansii* around the corona), and in the color of the outer corona (red-brown instead of canary-yellow). It resembles *D. pillansii* in having the corolla-lobes replicate only to about half-way down. This feature occurs in none of the other *Duvalias* in which the corolla is not pubescent (or minutely so on the rim of the annulus only), and it makes *D. modesta* and *D. pillansii* intermediate, as it were, between the Arabian *D. sulcata*, whose corolla-lobes are not replicate at all, and the remaining non-pubescent South African species, whose corolla-lobes are replicate from tip to base. It should be noted that, at least in some plants, the an-

nulus of *D. modesta* reveals a very minute pubescence when examined with a lens.

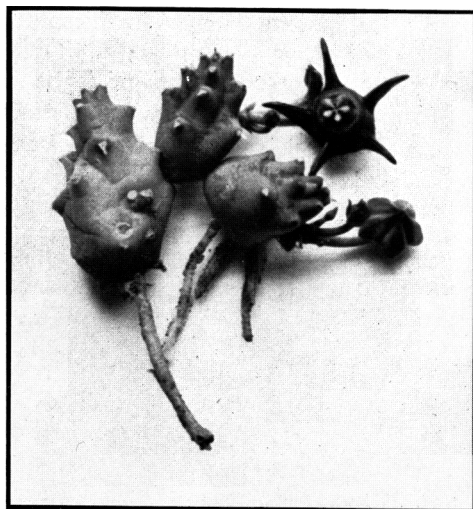


FIG. 755

Duvalia modesta N. E. Brown x 1.

From Golden Valley, Somerset East.
Photo: G. W. Reynolds, Johannesburg.

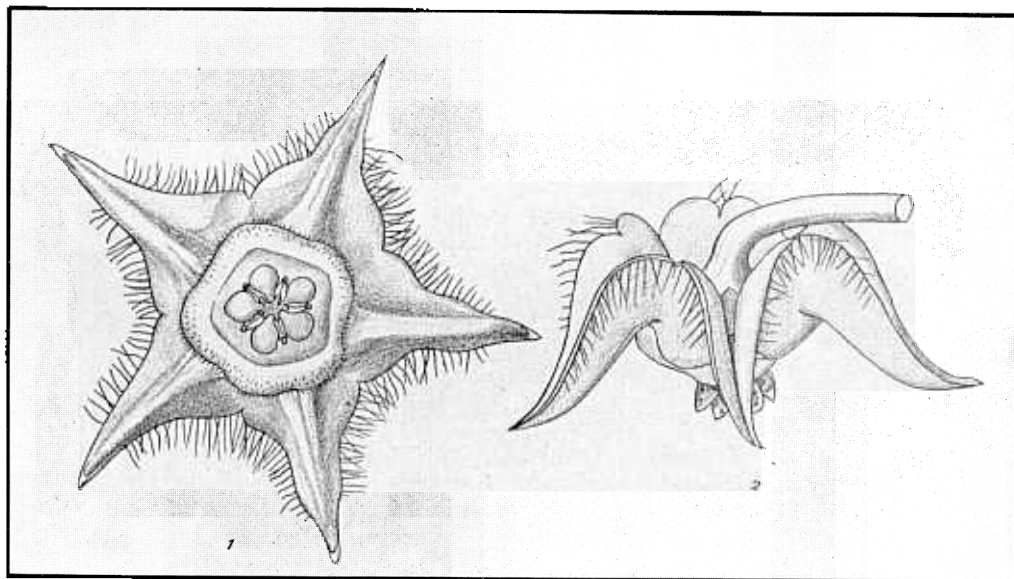


FIG. 756

Duvalia modesta N. E. Brown x 3.5

Showing flower with the annulus minutely pubescent. From a drawing by Miss Cythna Letty in the Flowering Plants of South Africa, 1935.

7. *Duvalia pillansii* N. E. Brown, Flora Cap., iv. i. 1026. 1909.

(Description by Dr. Brown, l.c.):

Stems: $\frac{3}{4}$ to 2 in. long, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, ovoid to oblong, obtusely 4 to 6-angled; angles with conical acute tubercle-like teeth $1\frac{1}{2}$ to 2 lin. long;*Flowers*: 2 to 3 together, successively developed near the middle of the young stems;*Pedice*l: usually about $\frac{1}{4}$ (rarely up to $\frac{1}{2}$) in. long;*Sepals*: 1 to $1\frac{1}{2}$ lin. long, ovate or ovate-lanceolate, acuminate;*Corolla*: in bud deeply and acutely 5-lobed at the flat and rather thin basal part, abruptly acuminate into a very acute 5-grooved cone; when expanded 1 to $1\frac{1}{6}$ in. in diameter, dark chocolate passing into light purple on the top of the annulus and fading into a narrow white ring around the corona; lobes ascending-spreading, with recurving tips, 4 to 5 lin. long and as much in breadth at the base, broadly deltoid-ovate with the sides but slightly folded back at the base, rather abruptly acuminate and replicate at the apical part, glabrous on both sides, ciliate on the basal half with fine simple purple hairs 1 to $1\frac{1}{2}$ lin. long; annulus 1 to $1\frac{1}{3}$ lin. high and $3\frac{1}{2}$ to 4 lin. in diameter at the top, with the sides much sloping outwards, obscurely pentagonal, glabrous.*Outer corona*: about $2\frac{1}{4}$ lin. in diameter, pentagonal, light canary-yellow;*Inner corona*: light canary-yellow.

Type locality: Cape Prov.: Aberdeen Distr.: near Aberdeen Road.

Distribution: Also from Uitenhage Distr.: near Redhouse; Ladismith Distr.: Amalienstein.

Another discovery of N. S. Pillans, from the Great Karroo. It is classified next to *D. modesta* because the corolla-lobes have the same rare habit among *Duvalias* of folding back into more or less vertical plates only for half their length. A variety is recognized:



FIG. 757

Duvalia pillansii var. *albanica*

N. E. Brown x 0.75

Photo by F. Wiedemann.

Var. a. *Duvalia pillansii* var. *albanica* N. E. Brown, Flora Cap., iv. i. 1027. 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes suberect; annulus slightly raised above the margin of the outer corona.

Type locality: Cape Prov.: Albany Distr.: vicinity of Grahamstown.

Distribution: Also from Uitenhage Distr.

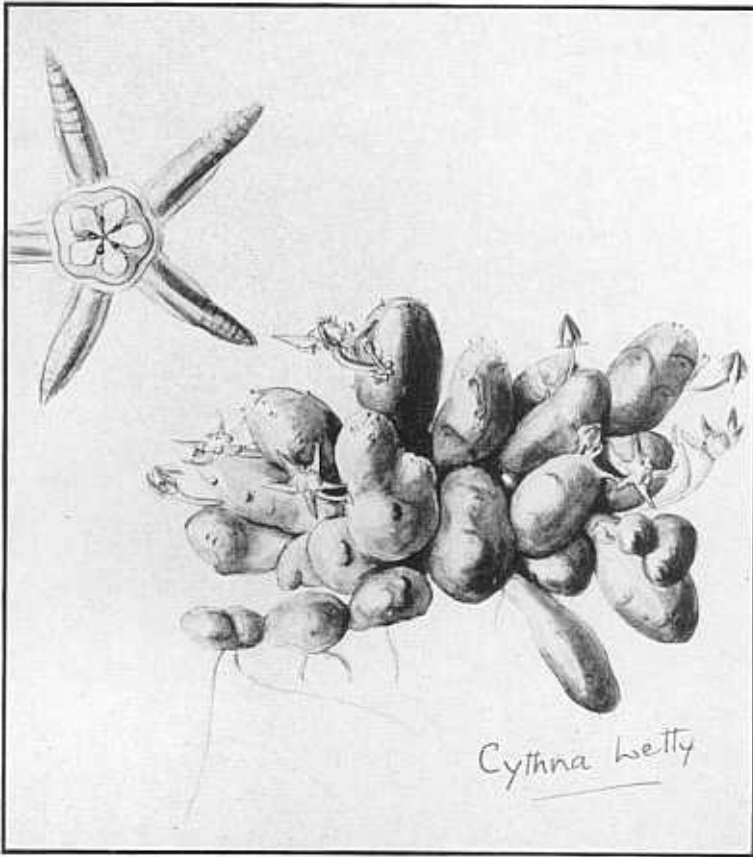


FIG. 758

Duvalia parviflora N. E. Brown x 1.

From the original water color drawing by Miss Cythna Letty for the Flowering
Plants of South Africa, 1930.

8. *Duvalia parviflora* N. E. Brown, Flora Cap., iv. i. 1034. 1909.

(Description by Dr. Brown, l.c.):

Stems: about 1 in. long and $\frac{1}{2}$ in. thick, oblong, very obtusely and somewhat obscurely 5 (to 6?)-angled, light green, mottled with dull purple, faintly glaucous, angles rather obscurely indented above each minute tooth, or obscurely and distantly tessellate-tuberculate;

Flowers: 4 to 5 together, successively developed near the apex of the stems;

Pedicel: $\frac{1}{6}$ to $\frac{1}{3}$ in. long;

Sepals: $\frac{3}{4}$ to 1 lin. long, ovate-lanceolate, acuminate;

Corolla: about 5 to 7 lin. in diameter, "cream-color, with the apical half of the lobes pale purple" (Pillans); lobes 2 to $2\frac{1}{2}$ lin. long, very spreading, closely replicate to the base into vertical plates $\frac{3}{4}$ lin. deep, glabrous, ciliate with a few very minute simple cream-colored hairs at the base only; annulus $1\frac{1}{2}$ to 2 lin. in diameter, raised about $\frac{1}{4}$ lin. above the level of the lobes, obtusely pentagonal, glabrous, the top quite covered (without leaving a margin) by the equally large outer corona;

Outer corona: straw-colored (Pillans);

Inner corona: straw-colored (Pillans);

Anthers: purple (Pillans).

Type locality: Cape Prov.: Laingsburg Distr.: at Witte Poort, on main road between Laingsburg and Ladismith.

Distribution: At other points in Laingsburg and Ladismith districts.

The "small-flowered *Duvalia*" was discovered by Mr. Pillans in the westerly part of the Great Karroo. The odd little stems, which assume all sorts of irregular rounded shapes, have been aptly compared by Dr.

Phillips to "small green potatoes." The half-inch flowers, with their cream-colored corolla and straw-colored corona, centring on the purple anthers, are very distinctive. The corolla-lobes have pale purple tips.

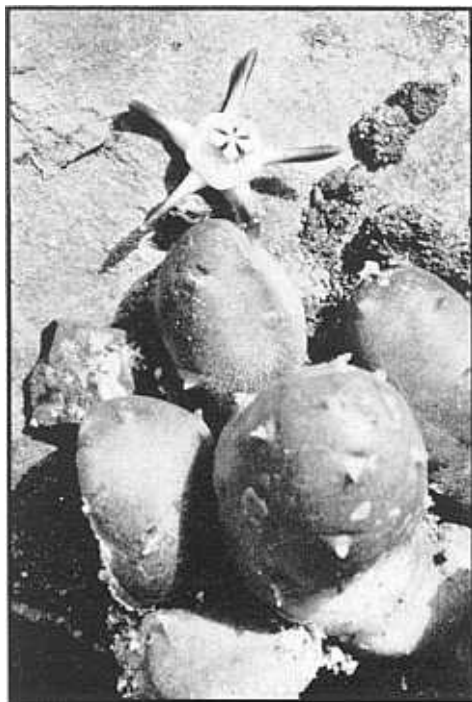


FIG. 759

Duvalia parviflora N. E. Brown x 2.25

Photo by Herbert Lang.

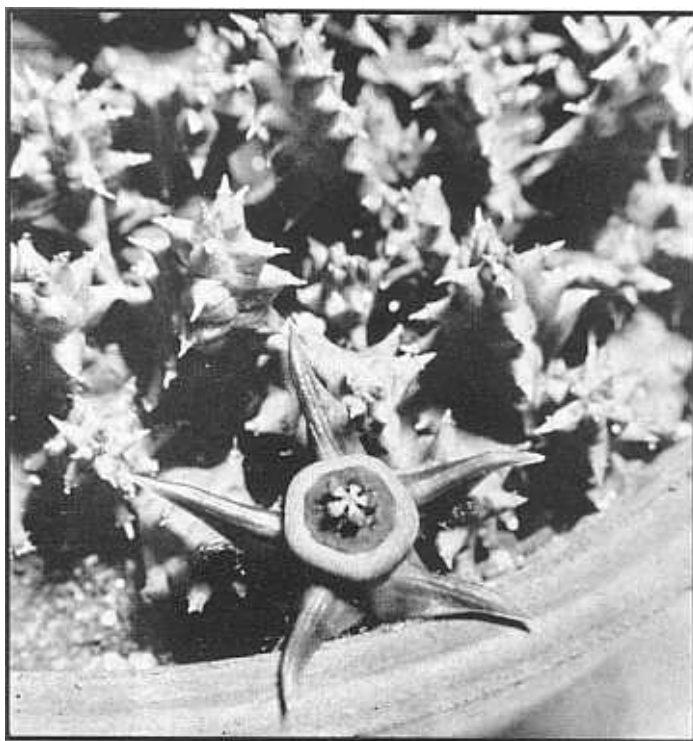


FIG. 760

Duvalia emiliana White x 2.

9. *Duvalia emiliana* White, Stap., 1 Ed., 126. 1933.

(Description by A. White):

Species in editione prima operis nostri depicta. Flos colore ad florem *Duvaliae corderoyi* accedit, differt autem corollae annulo puberulo nec pilis longis confertis tecto. Caules a reliquis generis forma quadrata distinguuntur.

Stems: 1 to 1 $\frac{1}{4}$ in. long, greyish-green, 4 to 6-angled, with prominent teeth, which bear small rudimentary leaves and tiny lateral denticles;

Flowers: 1 or 2 together near apex of the young stems;

Pedicel: $\frac{1}{2}$ in. long;

Corolla: 1 to 1 $\frac{1}{4}$ in. in diameter, yellowish-green, becoming purplish-green near the tips of the lobes; lobes spreading, $\frac{3}{8}$ in. long, replicate, but not closely so, ciliate at base with a few short simple red hairs and some longer vibratile clavate purple hairs; annulus obscurely pentagonal, raised above the level of the lobes, very minutely pubescent, the surface showing tiny brown spots under lens and some lighter colored spots near the inner edge;

Outer corona: 10-sided, the sides alternately longer and shorter, reddish-purple;

Inner corona: lobes straw colored.

Type locality: Unknown.

Distribution: Unknown.

This very interesting species was named for Mrs. Boyd L. Sloane. It differs from other *Duvalias* in the unusual square-

angled form of the stems. In color, the flowers resemble those of *D. corderoyi*, but they are readily distinguished from these in

having the annulus very minutely pubescent, instead of densely covered with long hairs. The type plant is No. 143 in the White and Sloane collection. Its origin (presumably in South Africa) is unknown.

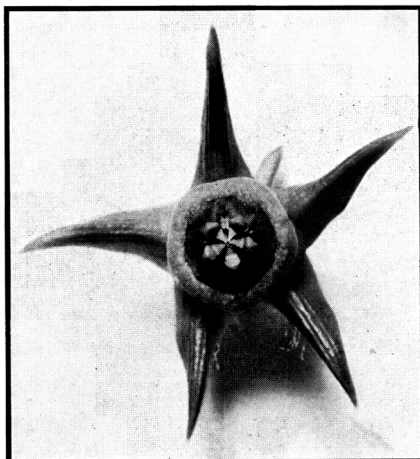


FIG. 761

Duvalia emiliana White x 2.

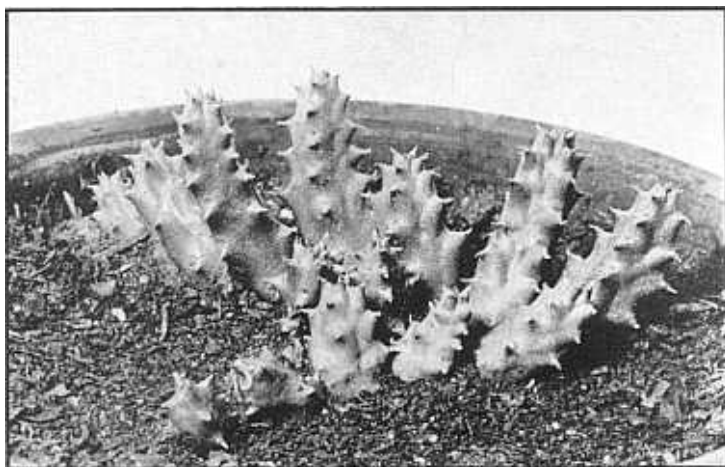


FIG. 762

Stems of *Duvalia emiliana* White

10. *Duvalia angustiloba* N. E. Brown, Gard. Chron., xx. 230. 1883.

(Description by Dr. Brown, Flora Cap., iv. i. 1034):

Plant: densely tufted; *stems* $\frac{1}{2}$ to 1 in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, subglobose or oblong, obtusely 4 to 5-angled, dull green; angles tuberculate-dentate;*Flowers*: 5 to 20 or more together in gradually developed cymes or fascicles, often on stout peduncles, at about the middle of the younger stems;*Pedice*l: 1 to $1\frac{1}{4}$ in. long, rather slender, glabrous;*Sepals*: $1\frac{3}{4}$ lin. long, reflexed, lanceolate-subulate;*Corolla*: very acutely conical and 5-grooved in bud; when expanded $\frac{3}{4}$ to 1 in. in diameter, glabrous, with an exceedingly minute ciliation at the base of the lobes, only visible under a lens, dark chocolate; *lobes* 4 to 5 lin. long, horizontally spreading, very narrowly linear-lanceolate, closely replicate from base to apex into vertical acute plates about 1 lin. in depth at the base, with an impressed line along the fold; *annulus* $1\frac{1}{2}$ to $1\frac{3}{4}$ lin. in diameter, not much raised above the level of the lobes, with a very narrow rim;*Outer corona*: reduced to a mere margin and together with the inner corona resembling a miniature crown, pure white at first, becoming dirty white in a few days;*Inner corona*: incumbent tips of the lobes very acute.*Type locality*: Cape Prov.: Central region? "From the Karroo, on the way to the Diamond fields."*Distribution*: Not further known.

Discovered by Dickson, during the Governorship of Sir Henry Barkly and sent by him to the Royal Botanic Gardens, Kew. There is no record of its having been collected since, but it has remained generally distributed in cultivation, and is a hardy grower and the most free-blooming of the *Duvalias*. The plant is well named, the "narrow-lobed *Duvalia*," for its flowers can be recognized at a glance by the extreme tenuity of their corolla-lobes, as well as by the white color of the corona.

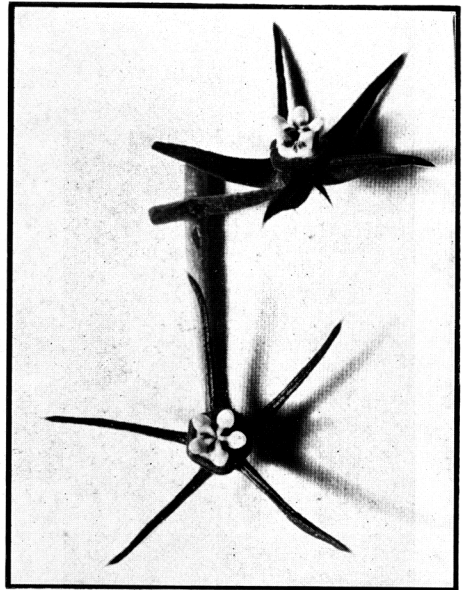


FIG. 763

Duvalia angustiloba N. E. Brown x 2.



FIG. 764
Duvalia maculata var. *immaculata*
Luckhoff x 2.

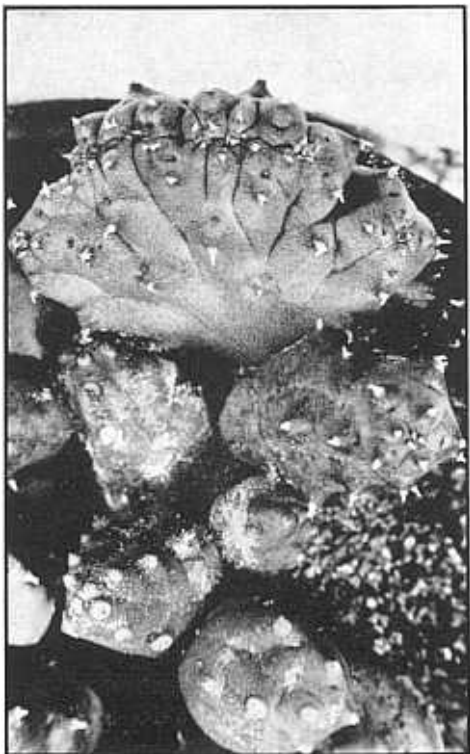


FIG. 765
Crested stem of *Duvalia maculata*
N. E. Brown

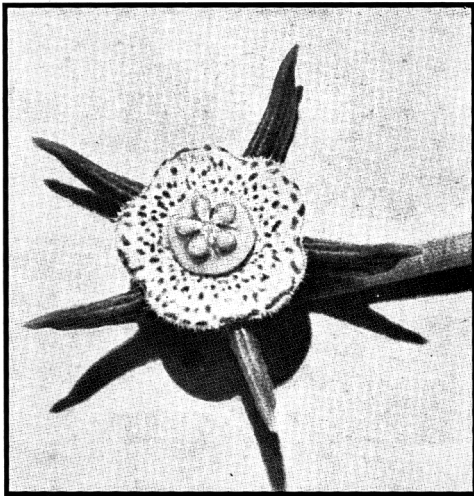


FIG. 766
Duvalia maculata N. E. Brown x 2.7
Photo by Ernst Rusch, Jr., of a flower from
Mickberg-Karasberge, South West Africa.
See Addenda F.



FIG. 767
Duvalia maculata var. *immaculata* Luckhoff x 2.
Photo by Carl Luckhoff.

-11. *Duvalia maculata* N. E. Brown, Flora Cap., iv. i. 1033. 1909.

(Description by Dr. Brown, l.c.):

Stems: tufted, decumbent, $\frac{1}{2}$ to $1\frac{1}{4}$ in. long, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, oblong, 4 to 5-angled, glabrous, dull green; angles rounded, with very spreading or slightly recurving very acute teeth 2 to $2\frac{1}{2}$ lin. long, having a minute tooth on each side at the middle;

Flowers: 4 to 8 or more together, successively developed at the middle or towards the base of the young shoots;

Pedicel: $\frac{1}{2}$ to $\frac{2}{3}$ in. long, rather slender, glabrous;

Sepals: 1 to $1\frac{1}{4}$ lin. long, deltoid-subulate, acute, glabrous;

Corolla: 7 to 10 lin. in diameter, with the sinuses reflexed to the pedicel; *lobes* $2\frac{1}{2}$ to $3\frac{3}{4}$ lin. long, replicate to the base into vertical plates $1\frac{1}{4}$ to $1\frac{1}{3}$ lin. deep at the base, very spreading, very acute, apparently olive-brown or purple-brown, perhaps indistinctly mottled (?), glabrous, with an exceedingly minute ciliation on the basal part; *annulus* $2\frac{1}{2}$ to $3\frac{1}{4}$ lin. in diameter, obscurely pentagonal, with its sides sloping underneath it (not vertical), and the rim rising considerably above the margin of the outer corona so as to form a sort of basin containing the corona, minutely puberulous, whitish, very distinctly spotted all over with purple-brown;

Outer corona: $1\frac{1}{2}$ lin. in diameter, obtusely pentagonal, apparently yellow;

Inner corona: lobes $\frac{1}{2}$ lin. long, $\frac{1}{3}$ lin. broad, ovoid, dorsally obtuse, apparently yellowish.

Type locality: Cape Prov.: Aberdeen Distr.: near Aberdeen Road.

Distribution: Also from Prince Albert Distr.: Prince Albert Road; Prieska Distr.; South West Africa: Great Namaqualand: near Aus.

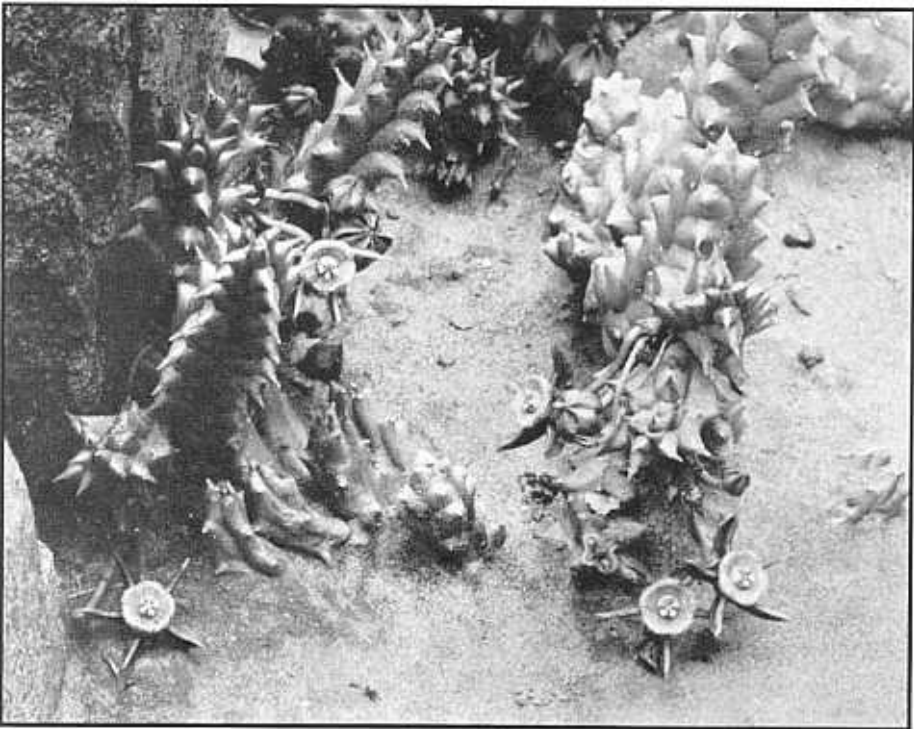


FIG. 768

Duvalia maculata N. E. Brown x 0.9

Photo by S. Tapscott.

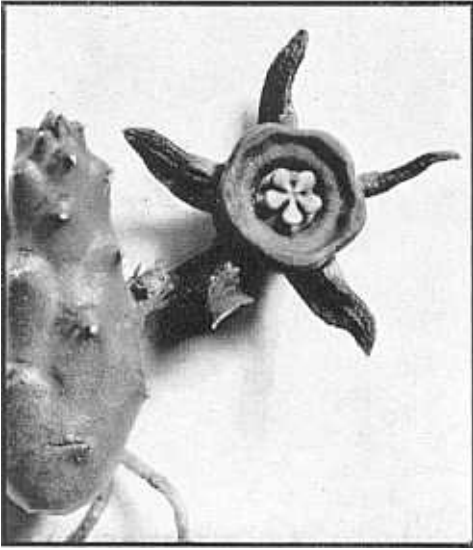


FIG. 769

Duvalia maculata var. *i*
Luckhoff x 2

Discovered by Mr. Pillans in the Great Karroo. It is a very interesting species, the flowers being remarkable for the manner in which the corona is sunk deep within, and below the rim of, the annulus. Dr. Brown compared the annulus to a sort of "basin containing the corona;" or one might say it had the appearance of a tiny bird's nest, and the corolla-lobes are so replicate and countersunk below the annulus that they suggest the old twigs which might support such a nest. The extent to which the corona-disk is depressed below the annulus varies in different specimens and there are also variations in the coloring and marking of the flowers. In the type plant the inner face of the corolla was purple-brown to olive-brown and the annulus whitish with very distinct purple-brown spots, whence the

species received its name, the "spotted Duvalia." In other flowers the corolla-lobes are greenish-yellow with the annulus purple and more faintly mottled. Finally in the new "spotless variety" shown in Fig. 769 (*Duvalia maculata* var. *immaculata* Luckhoff, var. nov.), the corolla is deep purple-brown and wholly devoid of spots, with the annulus of the same color as the lobes. In both the type and the variety, the outer edge and wall of the corolla annulus are curiously irregular, forming five wavy cre-nations, producing the effect referred to in the description as "obtusely pentagonal."

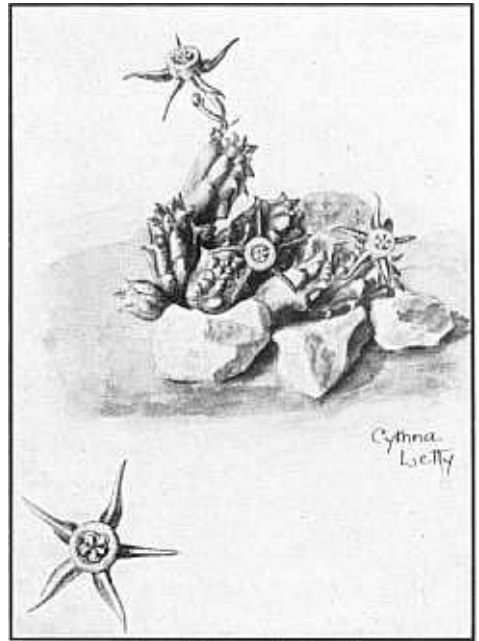


FIG. 770

Duvalia maculata N. E. Brown x 1.

From the original water color drawing by Miss
Cythna Letty for the Flowering Plants
of South Africa, 1932.

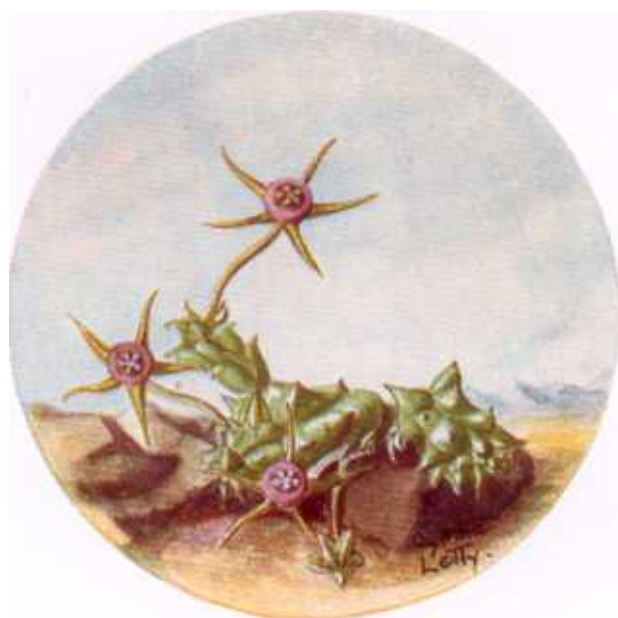


PLATE XXII

Düvalia maculata

Brown

original

drawing

by

Cythia Letty

12. *Duvalia caespitosa* (Masson) Haworth, Syn. Pl. Succ., 45. 1812.

Stapelia caespitosa Masson, Stap. Nov., 20. 1796.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1029):

Stems: $\frac{2}{3}$ to $1\frac{1}{2}$ in. long, 5 to 7 lin. thick, ovoid or oblong, obtusely 4 to 5-angled, green; angles tuberculate-dentate;

Flowers: 1 to 2 together from the middle or near the base of the young stems;

*Pedice*l: 4 to 5 lin. long, glabrous;

Sépals: about 1 lin. long, lanceolate, acute, glabrous;

Corolla: $\frac{2}{3}$ to $\frac{3}{4}$ in. in diameter; *lobes* horizontally spreading, closely replicate to the base into vertical plates, about 3 to $3\frac{1}{2}$ lin. long and 1 lin. in depth, glabrous, ciliate on the basal half with very fine and rather long simple purple hairs, dark chocolate; *annulus* $2\frac{1}{2}$ lin. in diameter with a microscopic puberulence, entirely dark chocolate, or according to Jacquin with a green ring around the outer corona;

Outer corona: $1\frac{2}{3}$ to $1\frac{3}{4}$ lin. in diameter, pentagonal, green;

Inner lobes yellowish.

Type locality: Cape Prov.: 'Karoo.'

Distribution: Port Elizabeth Distr. (Perhaps also in Victoria West Distr

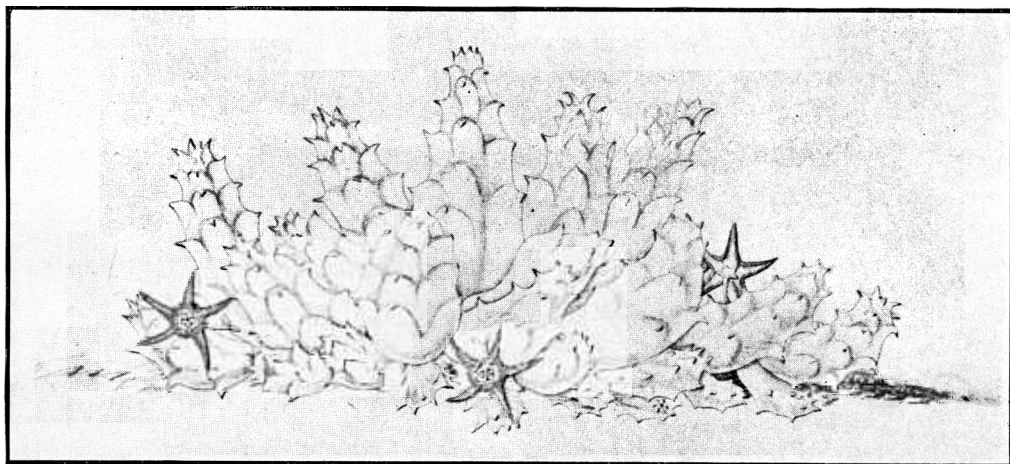


FIG. 771

caespitosa Haworth x

ion: *Stapeliae Novae*, 1'

Discovered by Francis Masson, who wrote that he found it "in the Karroo under shrubs" and that it flowered in his garden at the Cape in 1793. Specimens dated up to twenty years later are preserved in the herbariums of Haworth and of the Royal Botanic Gardens at Kew. Then for a century and a quarter the history of the species is a blank page. In 1932 a plant was collected by H. W. James, differing from the

type only in that the cilia on the corolla-lobes are shorter. The habitat of the plant is given as near Port Elizabeth, but the record is not certain. The species somewhat suggests the var. *birtella* of *Duvalia radiata*, with the flowers only about half as large. Their principal character lies in the green outer corona. The name, the "caespitose *Duvalia*," refers to the tufted, or tuft-like, appearance of the stems.

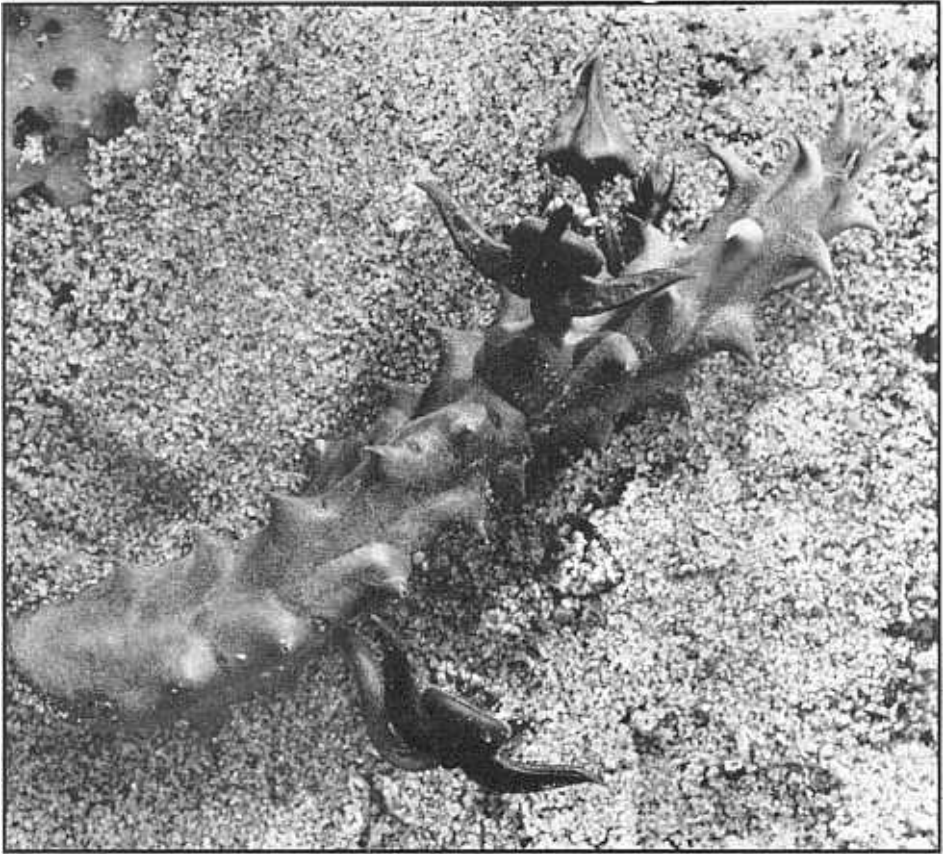


FIG. 772

Duvalia compacta Haworth x 1.75

Photo by Carl Luckhoff.

13. *Duvalia compacta* Haworth, Syn. Pl. Succ., 46. 1812.

Stapelia mastodes Jacquin, Stap., t. 13. 1806-19.

Stapelia compacta Schultes, Syst. Veg., vi. 46. 1820.

Duvalia mastodes Sweet, Hort. Brit., 1 Ed., 276. 1827.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1032):

Stems: $\frac{1}{2}$ to 1 (rarely 2) in. long, $\frac{1}{2}$ in. thick, globose or oblong, 4 to 5-angled, the angles formed of series of rounded apiculate tubercles, dull green;

Flowers: 1 to 5, successively developed at about the middle of the young stems;

Pedicel: $\frac{1}{2}$ to $\frac{3}{4}$ in. long;

Sepals: 1 to $1\frac{1}{4}$ lin. long, lanceolate-ovate, acute;

Corolla: $\frac{2}{3}$ to $\frac{3}{4}$ in. in diameter, entirely dark chocolate; *lobes* very spreading, with slightly recurving tips, $\frac{1}{4}$ to $\frac{1}{3}$ in. long, lanceolate, acute, replicate to their base into vertical plates about 1 lin. deep, glabrous, ciliate at the base only with a few very minute simple hairs, only visible under a lens; *annulus* small, $2\frac{1}{4}$ to $2\frac{1}{2}$ lin in diameter, with a narrow rim around the corona, glabrous or very minutely puberulous;

Outer corona: $1\frac{1}{2}$ to $1\frac{3}{4}$ lin. in diameter, obscurely pentagonal, less flat than in many species, brownish-red;

Inner corona: lobes dull orange-red.

Type locality: South Africa: without locality.

Distribution: Cape Prov.: Little Namaqualand: without precise locality; Willowmore Distr. (?)

The "compact *Duvalia*" belongs in the family circle of *Duvalia radiata*, its flowers being closely similar, but materially smaller. Its name refers to the singular stems, which have unusually broad, short tubercles, more closely set and more abruptly apiculate than in other species. It was

introduced into cultivation in England before 1800, but no record of its origin survives. Dr. J. Luckhoff has growing in his garden in Capetown the plant shown in Fig. 772, of which his son has written us: "It conforms to Haworth's description to the last detail, and yet there is nothing characteristic about it. It came from Little Namaqualand." It cannot be proved conclusively that Haworth's name for the species, which dates from 1812, has chronological priority over Jacquin's name (*D. mastodes*), inasmuch as the latter may have been published as early as 1806 or as late as 1819. Those interested in the difficult problem of Jacquin's dates are referred to p. 92.

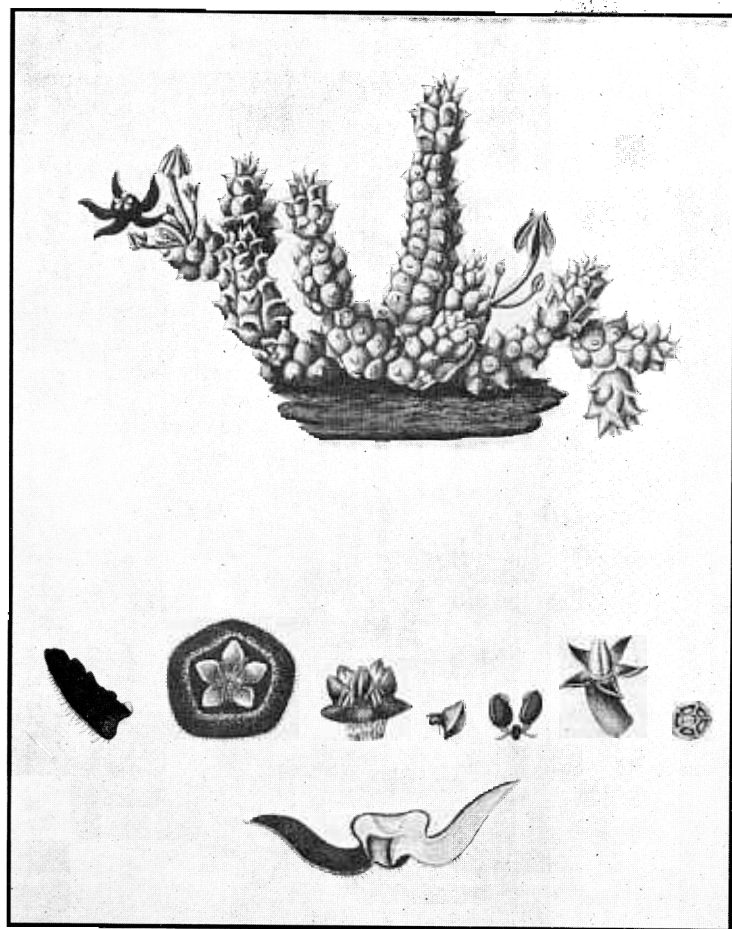


FIG. 773

Duvalia compacta
Haworth x 0.6

From Jacquin: *Stapeliarum*
Descriptiones, 1806-19.

14. *Duvalia reclinata* (Masson) Haworth, Syn. Pl. Succ., 44. 1812.

Stapelia reclinata Masson, Stap. Nov., 19. 1796.

Stapelia radiata Link, Enum. Pl. Hort. Berol., i. 257. 1821. *Nec* Sims, 1803.

Duvalia propinqua Berger, Monatsschr. Kakt., 24. 1904.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1030) :

Stems: $\frac{3}{4}$ to 3 in. (up to 4 in., *Masson*, and sometimes up to 1 ft., *Jacquin*) long, 5 to 6 lin. thick, with 4 to 5 obtuse tuberculate-toothed angles, dull green;

Flowers: 1 to 3 together near the base or middle of the young stems;

*Pedice*l: $\frac{1}{2}$ to 1 in. long;

Sepals: $1\frac{1}{2}$ to $2\frac{1}{4}$ lin. long, lanceolate-attenuate;

Corolla: $\frac{7}{8}$ to $1\frac{1}{4}$ in. in diameter, dark chocolate or with the rim of the annulus around the corona greenish, rather shining; *lobes* 4 to $5\frac{1}{2}$ lin. long, very spreading, replicate to the base into vertical plates $1\frac{1}{2}$ to 2 lin. deep, fringed on the basal half with vibratile clavate purple hairs 1 to $1\frac{1}{4}$ lin. long, otherwise glabrous; *annulus* $3\frac{1}{2}$ to 4 lin. in diameter and about $1\frac{1}{2}$ lin. high, obtusely pentagonal, glabrous, puberulous or very shortly pubescent on the rim;

Outer corona: obtusely pentagonal, orange-brown or dull brownish-red;

Inner corona: lobes dull orange or brownish-orange.

Type locality: South Africa: without precise locality.

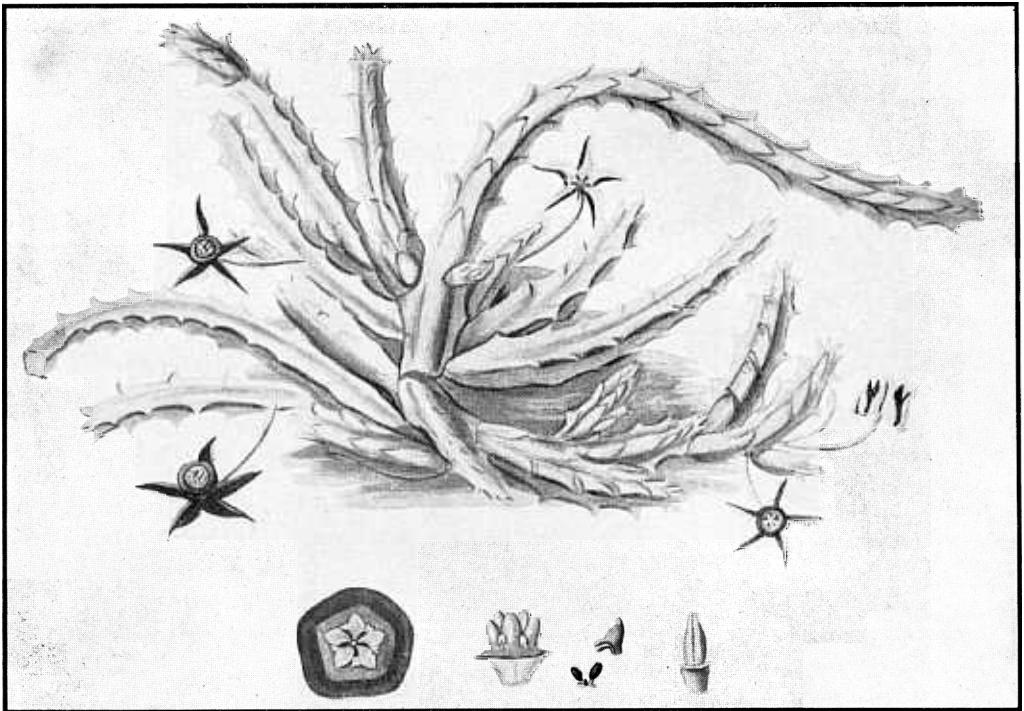


FIG. 774

Duvalia reclinata Haworth

From *Jacquin: Stapelium Descriptions*, 1806-19.

Distribution: Cape Prov.: Somerset East Distr.: Karroo, Somerset East; Graaff Reinet Distr.: hills near Graaff Reinet; Aberdeen Distr.: near Aberdeen Road; Uitenhage Distr.: near Redhouse; Jansenville Distr.: Klipplaat; Cradock Distr.: Cradock Road; Lake Arthur; etc.; Willowmore Distr.

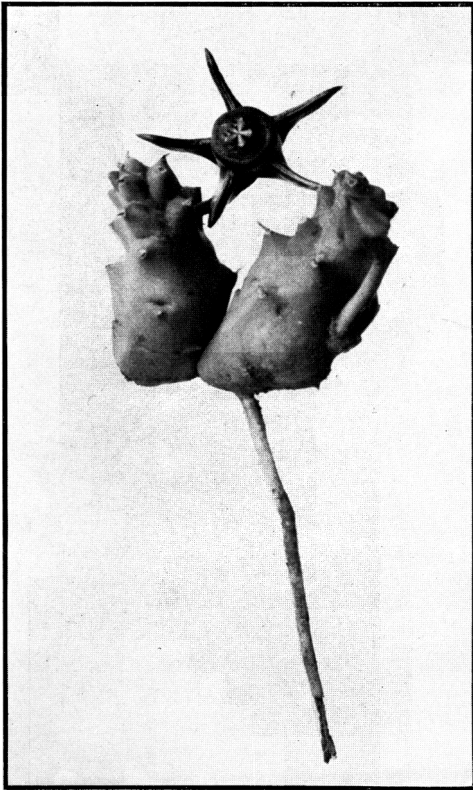


FIG. 775

Duvalia reclinata Haworth x 1.

Photo: G. W. Reynolds, Johannesburg.

Masson, who discovered the species, only says that its habitat is in South Africa and that it flowered in his little garden. He gave it the specific name, "reclinate," because of the bending down of the plant stems. This, however, is not a constant character of the stems and is not even mentioned by Dr. Brown. Berger refers to it as an alternative to the more usual erect or ascending stems. The species very closely resembles *Duvalia radiata* and the two plants, with their several varieties, may well be studied together. In a system of plant classification permitting subspecies

D. radiata might more properly be considered as a subspecies of *D. reclinata*; but pending the universal adoption of such a system we prefer to maintain the two as distinct. We have, however, combined a third species, *D. hirtella*, heretofore considered as distinct, with *D. radiata* (see p. 776). The resemblances between *D. reclinata* and *D. radiata* include the general form of the 4 to 5-angled stems, the dark chocolate color of the corolla and the replicate and spreading corolla-lobes. The principal criterion for identifying the two species is found in the ciliation on the lower half of the corolla-lobes. In *D. radiata* and its varieties this consists of simple hairs, with at most a few clavate hairs intermixed, especially in the var. *minor*. Whether *D. radiata* is ever wholly without ciliation is uncertain and will be discussed on p. 777. In *D. reclinata* the ciliation is made up entirely of vibratile clavate hairs. Masson's plate shows the lobes ciliate to their tips, which is certainly an error. The color of the outer corona is a doubtful guide and that of the inner corona only a little more reliable.

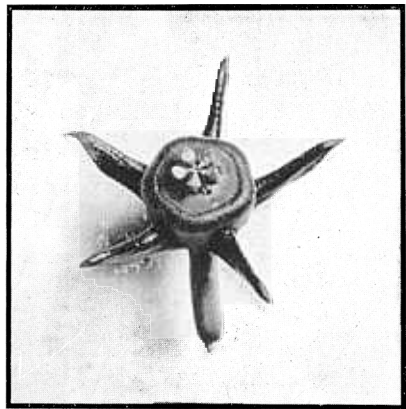


FIG. 776

Duvalia reclinata Haworth x

Carl Luckhoff, who has studied the corona color very carefully, writes us: "In *D. reclinata* I have seen the outer corona in the following shades: (1) deep purple, var. *bifida* (easterly Cape Prov.), (2) orange (Calitzdorp), (3) brown and straw (Ladismith,) and (4) any number of intermediate shades; in *D. radiata* and its var. *hirtella* it is a brownish-red; and in *D. radiata* var. *obscura* a deep purple. In shape, the coronas of both species and all varieties present variations from nearly circular to distinctly pentagonal or almost 10-sided, the last form being especially noticeable in *D. reclinata* var. *angulata*. As regards the inner corona, in *D. reclinata* this varies between a dirty straw and a rich reddish-brown; in *D. radiata* it is brownish to golden, and in the var. *hirtella* usually reddish. In all the forms of both species a variable straw to pale greenish-yellow speckled area is not infrequent on the inner rim of the annulus around the outer corona." This lighter area on the rim of the annulus varies between different flowers on the same plant. In one flower of a plant of *D. reclinata* we found that the corolla annulus had the inner rim white; on

the next flower developed it was yellowish; and on a third there was practically no lighter ring at all. Taken as a whole, *D. reclinata* is only a little less variable than *D. radiata*. In both the varieties must be accepted as extreme variations in details; but intermediate forms occur constantly also. Of *D. reclinata*, two varieties have been recognized by Dr. Brown:

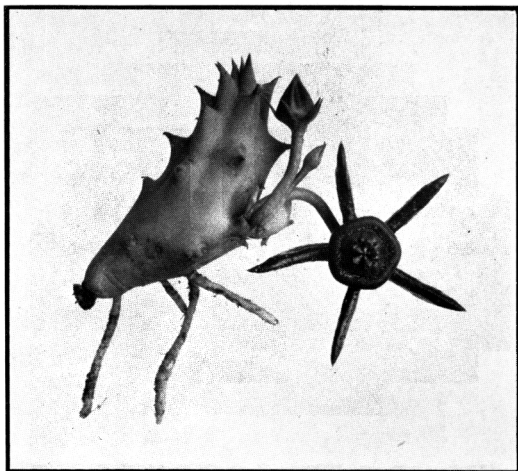


FIG. 777

Duvalia reclinata Haworth x 1.
From Klipplaat. Photo: G. W. Reynolds,
Johannesburg.

Var. a. *Duvalia reclinata* var. *bifida* N. E. Brown, Flora Cap., iv. i. 1030. 1909.

(Description by Dr. Brown, l.c.):

Corolla: annulus very shortly pubescent with purple hairs on the rim;

Inner corona: lobes often bifid at the inner apex;

Otherwise as in the type.

Type locality: Cape Prov.: Somerset East Distr.: Glen Avon Estate, near Somerset East.

Distribution: Also from Cradock Distr.: Halesowen.

The "bifid variety" was discovered by Mr. Pillans. Mr. Luckhoff says the inner corona-lobes are constantly bifid in all flowers.

Var. b. *Duvalia reclinata* var. *angulata* N. E. Brown, *Flora Cap.*, iv. i. 1030. 1909.

(Description by Dr. Brown, l.c.) :

Corolla: lobes about $\frac{1}{3}$ in. long, replicate into vertical plates $1\frac{1}{4}$ lin. deep; *annulus* 1 lin. high, obtusely 5-angled, of a lighter purple-brown than the lobes, with 5 small straw-colored patches around the outer corona (*Pillans*), minutely pubescent all over the rim;

Outer corona: with 10 distinct angles and 10 flat sides between them, "straw-color tinted with purple" (*Pillans*) ;

Inner corona: "rich cream color" (*Pillans*) ;

Otherwise as in the type.

Type locality: Cape Prov.: Ladismith

Distr.: without precise locality.

Distribution: Not further recorded.

It takes some magnifying power to distinguish the ten angles of the outer corona in this "angled variety," but once recognized they furnish a striking character, which is combined with some degree of variation as to other features. This variety also was discovered by Mr. Pillans.

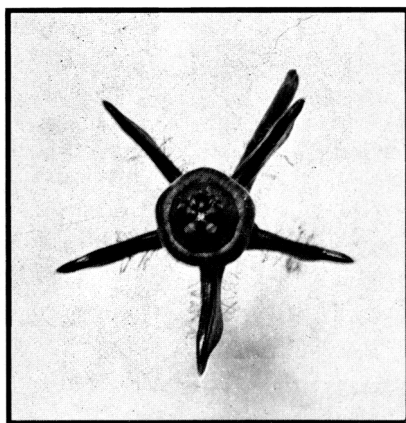


FIG. 778

Duvalia reclinata var. *angulata*
N. E. Brown x 2.

Duvalia concolor (Salm-Dyck) Schlechter, *Journ. Bot.*, 477. 1898.

Stapelia concolor Salm-Dyck, *Hort. Dyck.*, 372. 1834.

Stapelia barbata Hort., *Hort. Dyck.*, 372. 1834. *Nec* Masson, 1796.

Prince Salm-Dyck wrote of this singular, imperfectly known species, that it occurred in gardens under the name *Stapelia barbata*. He coined the name, the "uniformly-colored *Stapelia* (*Duvalia*)," in reference to the uniformly blackish-purple flowers,

which he said resembled those of *D. reclinata*, but were larger. The plant stems, however, resembled those of *Huernia*, being exactly tetragonous. Nothing further is known about the plant. Dr. Brown surmises it may be a native of Namaqualand.

15. *Duvalia radiata* (Sims) Haworth, Syn. Pl. Succ., 45. 1812.*Stapelia radiata* Sims, Bot. Mag., t. 619. 1803.*Stapelia replicata* Jacquin, Stap., t. 15. 1806-19. Nec Masson, 1796.*Duvalia replicata* Sweet, Hort. Brit., 1 Ed., 276. 1827. Nec Haworth, 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1032):

Stems: 1 to 2 in. long, $\frac{2}{3}$ to $\frac{3}{4}$ in. thick, globose or oblong, obtusely 4 to 5-angled; angles with stout conical acute teeth;*Flowers*: usually 2 together, developing in succession near the base of the stems;*Pedice*l: $\frac{2}{3}$ to 1 in. long;*Sepals*: lanceolate, acute or acuminate;*Corolla*: 10 to 14 lin. in diameter, dark chocolate; *lobes* 4 to 5 lin. long, very spreading, closely replicate to the base into vertical plates $1\frac{1}{2}$ to 2 lin. deep, glabrous and not ciliate; *annulus* 4 to 5 lin. in diameter, apparently about 1 lin. high, nearly circular, glabrous;*Outer corona*: about 3 lin. in diameter, obscurely pentagonal or nearly circular, reddish-brown;*Inner corona*: lobes dull yellowish or with a reddish tinge.*Type locality*: South Africa: without precise locality.*Distribution*: Orange Free State: on kopjes near the Kromellenboog River on border of Fauresmith and Edenburg districts; Cape Prov.: Ladismith Distr.; Oudtshoorn Distr.: Congo series; Van Rhynsdorp Distr.

FIG. 779

Duvalia radiata Haworth x 0.75

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1930.

The "ray-flowered Duvalia" was introduced into cultivation in England in 1799 by the nursery firm of Loddiges at Hackney. Up to the present time the group of closely related plants, which we refer to this species and its varieties, has been divided between two species, *Duvalia radiata* and *D. hirtella*, with two varieties of the latter. *D. radi-*

ata has generally been described as having the annulus of its corolla glabrous and the lobes not ciliate, and *D. hirtella* as having the annulus pubescent and the lobes ciliate towards the base. But there have long been doubts as to the validity of the distinction. In the Flora Capensis, Dr. Brown wrote: "I am quite unable to determine whether *D. radiata* is really a distinct species or identical with a minutely ciliated

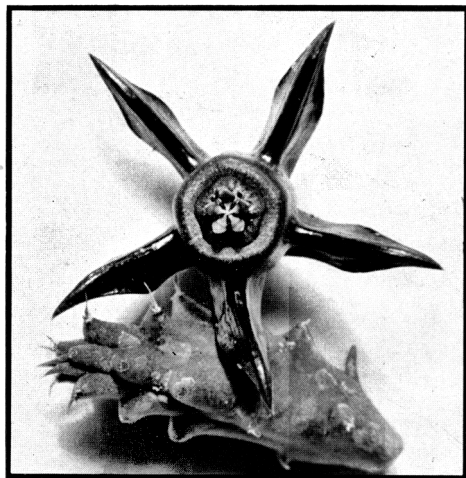


FIG. 780

Duvalia radiata Haworth x 2.

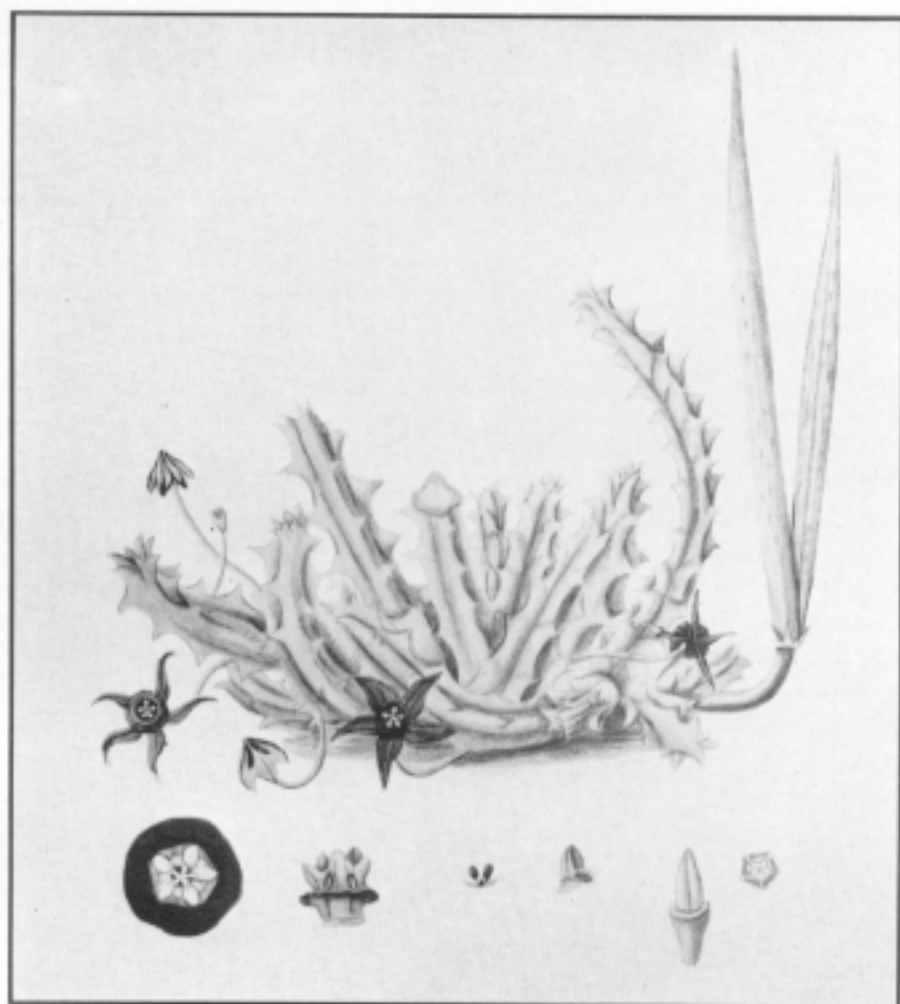


FIG. 781

Duvalia radiata HaworthFrom Jacquin: *Stapelium Descriptiones*, 1806-19.

form of *D. hirtella* var. *obscura*. According to all authors, *D. radiata* is quite destitute of cilia on the corolla-lobes. The only example I have seen that might possibly be this species is a specimen in Kew Herbarium named *Duvalia radiata* and dated 1813, but this differs in having a few minute cilia on the lobes and the annulus is puberulous on the rim. The cilia might easily be overlooked without the aid of a lens, so if this specimen really represents the plant figured by Sims, on which the

species is founded, then the minutely ciliated form of *D. hirtella* var. *obscura* also belongs to it." Carrying forward the belief that the corolla-lobes in *D. radiata* are, at least in some cases, minutely ciliate near the base, Dr. E. P. Phillips, in the *Flowering Plants of South Africa*, t. 383, 1930, published a figure by Miss Letty from a plant cultivated at the Division of Plant Industry, Pretoria, whose origin was not otherwise known, but which conformed to a specimen later collected in the Oudtshoorn division.

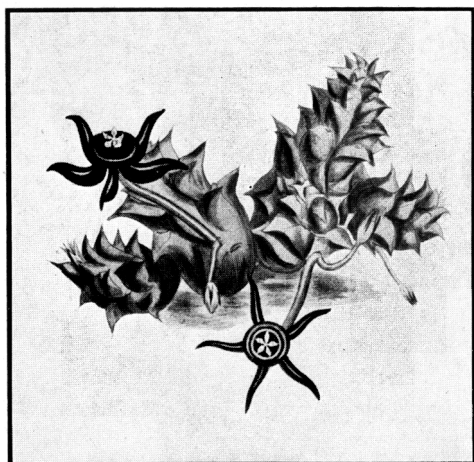


FIG. 782

Duvalia radiata Haworth x 1. .

From a drawing by Sydenham Edwards, in Curtis's
Botanical Magazine, 1803.

Of this plant, Dr. Phillips wrote: "We have little doubt that the plant figured is *Duvalia radiata*." Minute cilia are shown

on the basal part of the corolla-lobes and the annulus is faintly pubescent. (See Fig. 779).

On the other hand Miss Verdoorn reports a specimen from the Orange Free State, whose flowers are "quite without cilia," and Mr. Pillans and Mr. Herre record the species from the Ladismith and Van Rhynsdorp divisions respectively. If, as would appear, the elements of annular pubescence and ciliation are faintly present in the flowers of some plants, and absent in others, with almost imperceptible gradations from one plant to the next, then the transition from *radiata* to *hirtella* is too gradual to permit of the maintenance of separate species, for the remaining differences between the two are wholly unessential. For this reason we are referring the former *D. hirtella* and its varieties to *D. radiata*, as new varietal combinations.

Var. a. *Duvalia radiata* var. *obscura* (N. E. Brown), comb. nov.

Duvalia hirtella var. *obscura* N. E. Brown, Flora Cap., iv. i. 1031. 1909.

(Description adapted from that by Dr. Brown, l.c.):

Corolla: lobes ciliate with simple or simple and very slightly clavate fixed or subvibratile hairs intermingled, varying in different specimens from $\frac{1}{4}$ to 1 lin. long; *annulus* $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. in diameter, $\frac{3}{4}$ to $1\frac{1}{3}$ lin. high, varying from glabrous to puberulous on the rim with minute hairs much shorter than those in the var. *hirtella*, often marked around the margin of the outer corona with a speckling or ring of dull ochre.

Otherwise as in the var. *hirtella*.

Type locality: Cape Prov.: Laingsburg Distr.: near Matjesfontein.

Distribution: Also in Laingsburg Distr.: near Nuy; near Witte Poort; Ladismith Distr.: without precise locality; Prince Albert Distr.: without precise locality; Somerset East Distr.: between Somerset East and Bruinthe Hoogte.

The "dark variety" of *D. radiata* was discovered by Prof. MacOwan. "In this variety," writes our collaborator, Mr. Luckhoff, "and to a lesser extent in the var. *hirtella*, the color of the whole flower tends to a considerable depth. I have noticed an equal depth of color in the Eastern Province forms of *Duvalia reclinata*." In general the flowers of the var. *obscura* have the ciliation of the corolla-lobes fairly developed and the annulus puberulous on the rim, representing an intermediate state between the type and the var. *hirtella*. However, Mr. Luckhoff continues, "I have seen the var. *obscura* devoid of cilia. Sometimes too the rim of the annulus is devoid of any pubescence, as it is more often in the type."

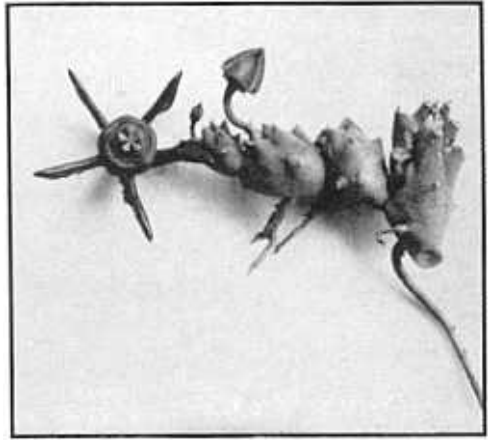


FIG. 783

Duvalia radiata var. *obscura*, comb. nov. x 1.
From Bruintjes Hoogte. Photo: G. W. Reynolds,
Johannesburg.

Var. b. *Duvalia radiata* var. *hirtella* (Jacquin), comb. nov.

Stapelia caespitosa de Candolle, Pl. Succ. Hist., t. 148. 1799. *Nec* Masson, 1796.

Stapelia hirtella Jacquin, Stap., t. 10. 1806-19.

Stapelia reclinata Sims, Bot. Mag., t. 1397. 1811. *Nec* Masson, 1796.

Duvalia hirtella Sweet, Hort. Brit., 1 Ed., 276. 1827.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1031):

Stems: subglobose to oblong, usually $\frac{3}{4}$ to 2 (sometimes up to 3) in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, obtusely 4 to 5 (or rarely 6) angled, tuberculate-toothed, glabrous, dull green or tinged or mottled with purple;

Flowers: 1 to 5 together at the middle or upper part of the young stems, progressively developed;

Pedicel: $\frac{1}{2}$ to 1 in. long, glabrous;

Sepals: $1\frac{1}{3}$ to 2 lin. long, lanceolate, acuminate, glabrous;

Corolla: $\frac{3}{4}$ to $1\frac{1}{6}$ in. in diameter, entirely dark chocolate or almost blackish; lobes 4 to $5\frac{1}{2}$ lin. long, very spreading, lanceolate, acute, closely replicate quite to the base into vertical plates $1\frac{1}{3}$ to 2 lin. deep at the base, glabrous, ciliate on the basal $\frac{1}{3}$ to $\frac{1}{2}$ of their length with simple hairs $\frac{1}{2}$ to $\frac{3}{4}$ lin. long; annulus $3\frac{1}{2}$ to 4 lin. in diameter and about $\frac{3}{4}$ lin. high, pentagonal, pubescent all over the top of the rim with purple hairs $\frac{1}{4}$ to $\frac{1}{2}$ lin. long;

Outer corona: about $2\frac{1}{2}$ lin. in diameter, obtusely pentagonal or nearly circular, dull brownish-red;

Inner corona: lobes dull yellow;

Follicles: $3\frac{1}{4}$ to 6 in. long, slightly diverging, narrowly fusiform, acute, smooth, streaked with purple-brown.

Type locality: Cape Prov.: without precise locality.

Distribution: Orange Free State: Fauresmith Distr.; Cape Prov.: Ladismith Distr.: without locality; Laingsburg Distr.: N. W. slopes of the Klein Zwart Berg, near Witte Poort; 11 miles on road from Laingsburg to Sutherland; Prince Albert Distr.: near Prince Albert; Sutherland Distr.: near Sutherland; Worcester Distr.: Touws River.

The "little shaggy variety" of *D. radiata* differs from the type mainly in the heavy pubescence (hairs to $\frac{1}{2}$ lin. long) which covers the entire top of the annulus rim. Its origin is not known. It is mentioned in

the first part of Jacquin's work, published in 1806; and if it is by any chance identical with Haworth's *D. tuberculata*, as Dr. Brown thought possible, it must have been introduced as early as 1774. (See p. 782).

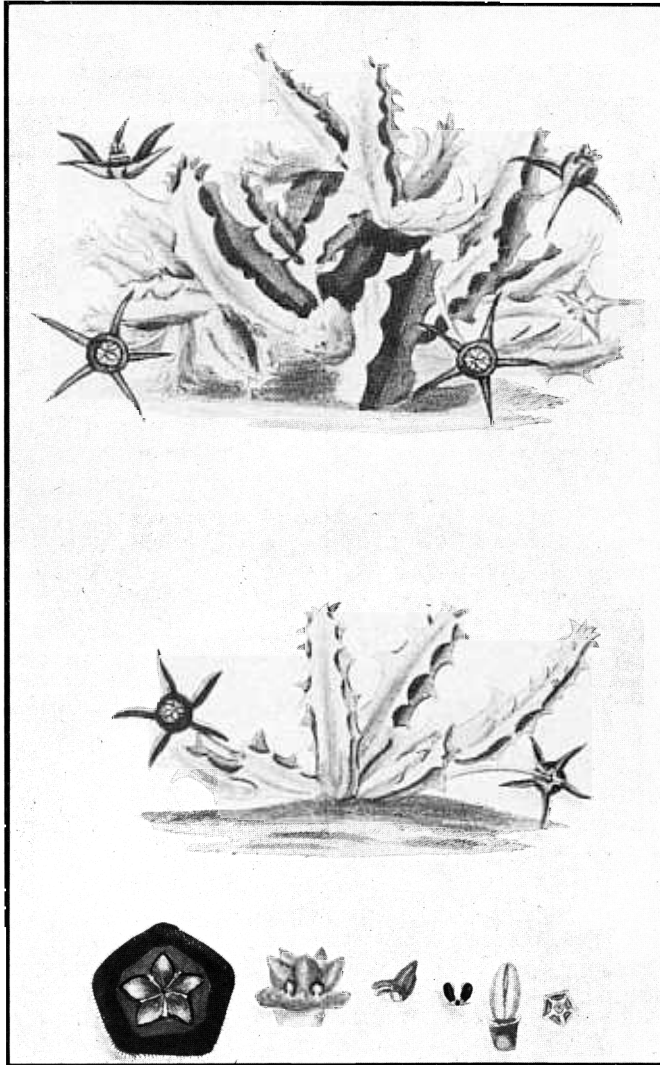


FIG. 784

Duvalia radiata var. *hirtella*, comb. nov
Jacquin: *Stapeliarum Descriptiones*, 1806

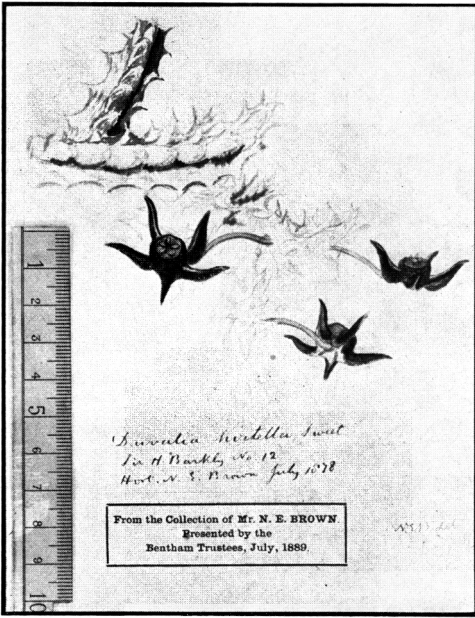


FIG. 785

Duvalia radiata var. *hirtella*, comb. nov. x 1.5
 Drawing by N. E. Brown, 1878. Reproduced by permission of the Bentham Trustees.

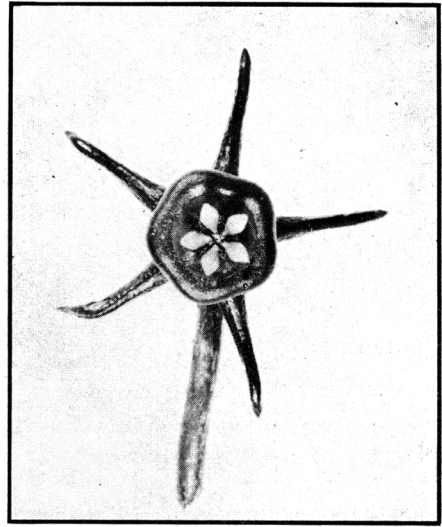


FIG. 786

Duvalia radiata Haworth x 2.25

Var. c. *Duvalia radiata* var. *minor* (N. E. Brown), comb. nov.

Duvalia hirtella var. *minor* N. E. Brown, Flora Cap., iv. i. 1031. 1909.

This variety is very closely allied to the var. *hirtella*, from which Dr. Brown says it differs only in the shorter length ($3\frac{1}{2}$ lin.) of the corolla-lobes and in the nature of their ciliation, which consists of simple and fixed or very slightly vibratile clavate hairs intermixed.

Type locality: Cape Prov.: Worcester Distr.: without locality.

Distribution: Not further known.

In addition to the recognized varieties of *Duvalia radiata*, three imperfectly known plants are mentioned by Haworth, which must be nearly related to, or possibly identical with, some of the existing varieties or the type. These are:

***Duvalia glomerata* Haworth, Syn. Pl. Succ., 46. 1812.**

Stapelia glomerata Schultes, Syst. Veg., vi. 46. 1820.

Said by Haworth to have been in cultivation before 1808. The name refers to the glomerate, or densely clustered, stems. The flowers apparently as in *D. radiata*, but perhaps larger, blackish-red, paler at the base of the annulus; lobes "naked," that is probably glabrous or without cilia.

Type locality: South Africa: without locality.

Distribution: Unknown.

***Duvalia laevigata* Haworth, Syn. Pl. Succ., 46. 1812.**

Stapelia laevigata Schultes, Syst. Veg., vi. 46. 1820.

The "polished *Duvalia*" is said by Haworth to have been in cultivation before 1808. Related to *D. radiata*, but the corolla-lobes more horizontally spreading and the annulus very large.

Type locality: South Africa: without precise locality.

Distribution: Unknown.

***Duvalia tuberculata* Haworth, Syn. Pl. Succ., 46. 1812.**

Stapelia tuberculata Schultes, Syst. Veg., vi. 46. 1820.

The "tuberculate *Duvalia*" is said by Haworth to have been in cultivation since 1774. This suggests its having been collected by Masson or Thunberg, but if so, no record of the fact has been preserved. Said to have somewhat smaller flowers than *D. radiata*, blackish rufescent; lobes ciliate-pubescent; annulus somewhat hairy; outer corona pale reddish; inner corona-lobes rosy-white. Dr. Brown thinks it is possibly not distinct from the var. *hirtella*. The meaning of the specific name is not clear.

Type locality: South Africa: without locality.

Distribution: Unknown.

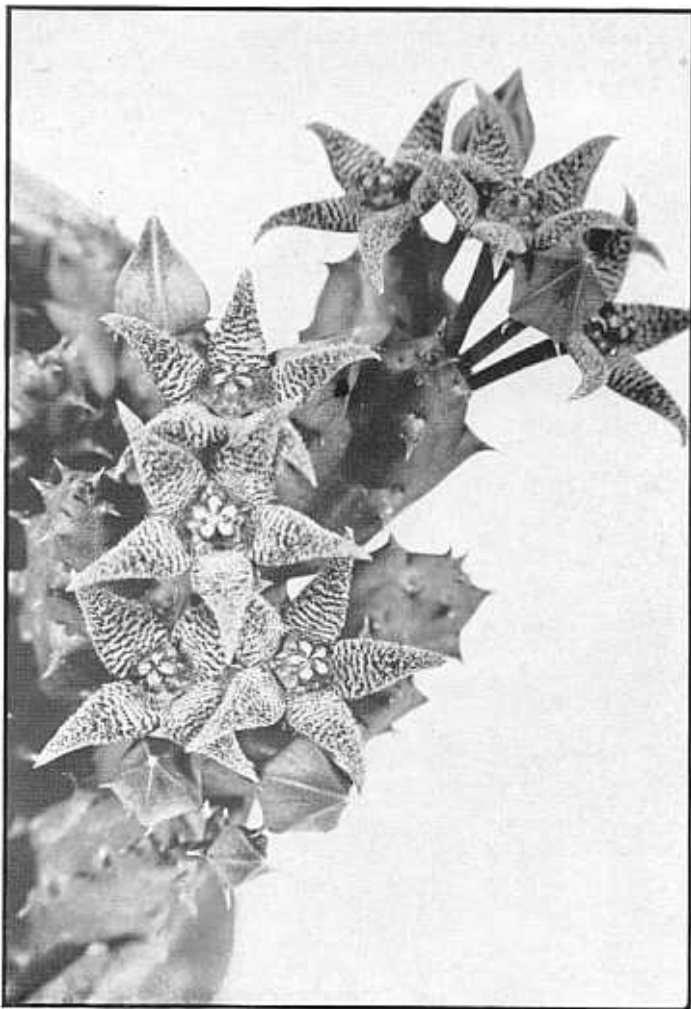


FIG. 787

Piaranthus foetidus N. E. Brown x 2.

Example of a *Piaranthus* (Key: II) whose flowers have no distinct corolla-tube.

PIARANTHUS R. Brown, Mem. Wern. Soc., i. 23. 1811.

Obesia Haworth, Syn. Pl. Succ., 42. 1812.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1015-16):

Plants: very dwarf succulent leafless herbs, with watery juice; *stems* decumbent or ascending, flowering at or near the apex or middle;

Flowers: in pairs or fascicles, erect, small or of moderate size;

Calyx: 5-partite;

Corolla: usually deeply 5-lobed and rotate when fully expanded, rarely with a campanulate or cup-shaped tube, velvety or pubescent (rarely glabrous) on the inner surface;

Corona: arising from the staminal column, simple; lobes 5, opposite the anthers, incumbent upon them with or without erect tips or rarely erect, dorsally produced or expanded into a truncate minutely tuberculate or denticulate crest;

Staminal column: arising from the base of the corolla, short; *anthers* free, oblong, without appendages at their apex, incumbent upon the dilated top of the style; *pollen masses* solitary in each anther-cell, subhorizontal, pellucid along the inner margin near the apex, attached in pairs by very short caudicles to minute excrescences on the sides of the narrow pollen-carriers.

Type species: *Piaranthus punctatus*.

Total species: 15.

Distribution: Cape Prov. and South West Africa.

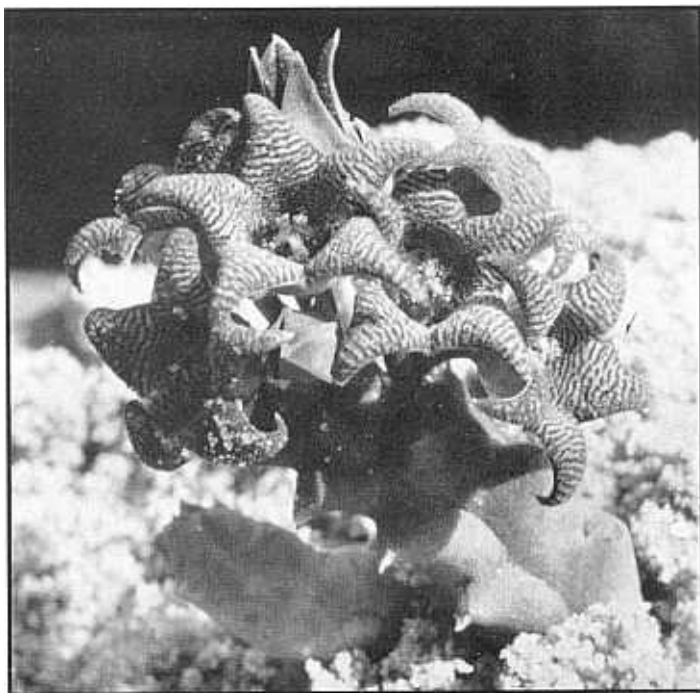


FIG. 788

Piaranthus punctatus R. Brown (var. D) x 1.75

Example of a *Piaranthus* (Key: I) whose flowers have a distinct corolla-tube. Photo by Dr. J. Luckhoff.

The name *Piaranthus* is from two Greek words, meaning literally the "fat flower." The genus was founded by Robert Brown, in an address delivered in 1809 and published in 1811, upon two of Francis Masson's plants, *Stapelia punctata* and *S. pulla*. Brown defined the corona of his new genus as "simple, 5-leaved, with the leaflets toothed at the back." This description applied very well to *Piaranthus punctatus*, with its single corona and crested coronalobes; but it was wholly inappropriate to

Stapelia pulla (which is now known as *Caralluma mammillaris*), because that species has a very distinct outer corona. From this inauspicious beginning, the history of *Piaranthus* has been one of much confusion. Haworth retained the name for Masson's *Stapelia pulla* and coined a Latinized equivalent, *Obesia*, as a new genus to provide for Masson's *Stapelia punctata*. Bentham and Hooker, in the second volume of their *Genera Plantarum*, 1876, made *Piaranthus* a synonym of Haworth's genus *Podanthes*,

with which it has nothing in common; while Dr. Schlechter in 1898 united the genus to *Caralluma*. Nevertheless *Piaranthus* has survived all these vicissitudes and forms to-day a well-defined and interesting group of plants, whose coronas can still be characterized in the original words of Robert Brown: "simple, with the leaflets toothed at the back." The plants themselves dove-tail so closely that their classification into species is not always easy. "Some of the species," wrote Dr. N. E. Brown in the *Flora Capensis*, "are rather closely allied, and although fairly easy to recognize when alive, I find are difficult to tabulate, whilst dried specimens are exceedingly difficult to discriminate unless ex-

ceptionally well dried. In some cases the flowers of the same species vary very considerably in color and sometimes in ciliation, and distinct varieties might easily be mistaken for different species, but Mr. Pillans informs me that the different variations grow together and are connected by a series of intermediate forms." To this Dr. E. P. Phillips adds in the *Flowering Plants of South Africa*: "The genus *Piaranthus* requires further study on living material before the species can be satisfactorily separated. Up to the present not sufficient material has been examined to enable us to say whether or not all the species described in the *Flora Capensis* should be recognized."

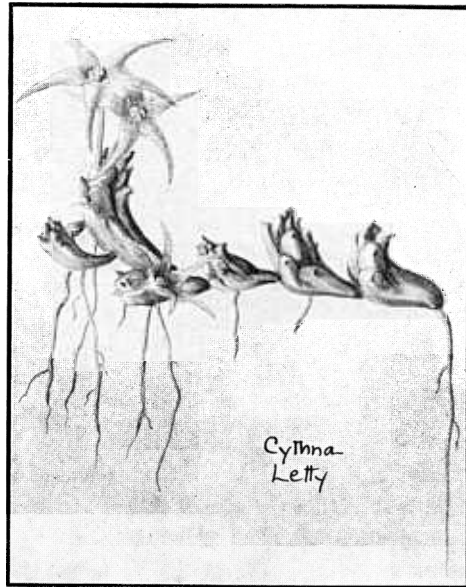


FIG. 789

Piaranthus disparilis N. E. Brown x 1.

From the original water color drawing by Miss Cythna Letty for the *Flowering Plants of South Africa*, 1932.

KEY TO THE GENUS PIARANTHUS

I. Corolla with a distinct tube:

A. Corolla whitish, with purple or blood-red markings:

1. Staminal column of equal diameter throughout 1. *P. punctatus* ($\frac{3}{4}$ in.)
2. Staminal column with a prominently expanded base 2. *P. framesii* ($\frac{3}{4}$ in.)

B. Corolla blackish-purple, without markings 3. *P. grivanus* (1 in.)

II. Corolla with no tube, or only a very short indistinct one:

A. Corona-lobes erect or recurving, produced above anthers:

1. Corolla yellow, with purple or purple-brown markings:
 - a. Ground color of corolla very pale yellow or creamy:
 - i. Markings prominent 4. *P. cornutus* (1 in.)
 - ii. Markings faint and widely spaced 5. *P. mennellii* ($\frac{1}{2}$ in.)
 - b. Ground color of corolla bright clear greenish-yellow 6. *P. pulcher* ($\frac{3}{4}$ in.)
2. Corolla yellow, without markings:
 - a. Corolla-lobes 2 to $2\frac{1}{2}$ lin. long 7. *P. parvulus* ($\frac{1}{2}$ in.)
 - b. Corolla-lobes up to $6\frac{1}{2}$ lin. long 8. *P. pallidus* (1 in.)

B. Corona-lobes incumbent on anthers, or with slightly upcurved tips:

1. Corona yellow, without markings or with markings on crests of lobes only:
 - a. Corolla white, with dark purple-brown spots 9. *P. comptus* ($\frac{3}{4}$ in.)
 - b. Corolla pinkish-purple, with fine yellow lines 10. *P. disparilis* ($\frac{3}{4}$ in.)
 - c. Corolla yellow, without markings:
 - i. Corolla under 1 inch 10 (a). *P. disparilis* var. *immaculatus* ($\frac{3}{4}$ in.)
 - ii. Corolla over 1 inch 11. *P. pillansii* ($1\frac{1}{4}$ in.)
 - d. Corolla yellow, with blood-red spots 12. *P. geminatus* ($1-1\frac{1}{4}$ in.)
 - e. Corolla yellow, with purple-brown spots 13. *P. decorus* ($1-1\frac{1}{4}$ in.)
 - f. Corolla greenish-yellow, with tiny reddish-lavender dots 4. *P. globosus* ($\frac{1}{2}$ in.)
 - g. Corolla ochre-yellow, with light purple spots 14 (a). *P. pillansii* var. *inconstans* ($1\frac{1}{2}$ in.)
 - h. Corolla dark purple, with greenish-yellow lines 14 (b). *P. pillansii* var. *fuscatus* ($1\frac{1}{4}$ in.)
2. Corona yellow, with purple-brown spots:
 - a. Corolla white, with dark purple-brown spots 9. *P. comptus*
3. Corona deep orange-yellow, with margins of lobes dark purple-brown:
 - a. Corolla varying in color 15. *P. foetidus* ($\frac{2}{3}$ -1 in.) and vars.

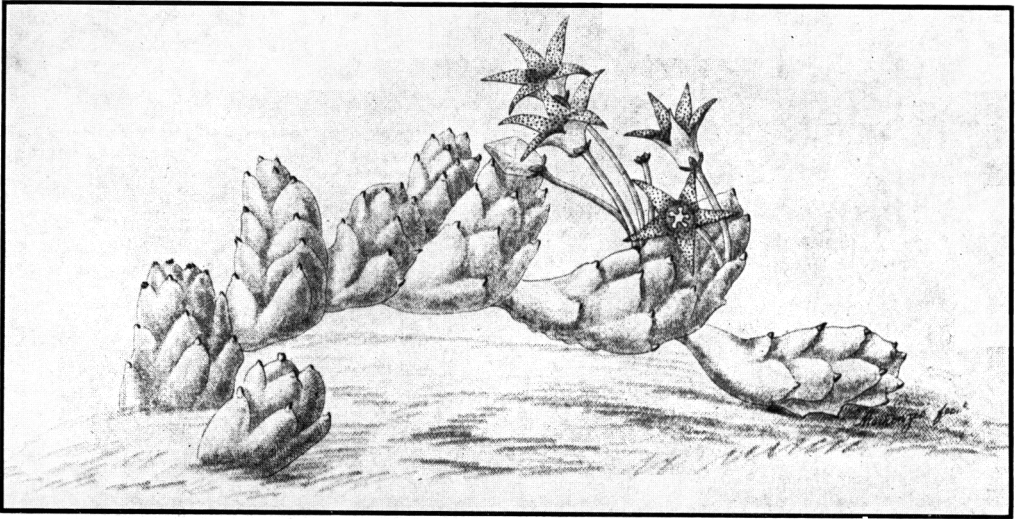


FIG. 790

Piaranthus punctatus R. Brown x
From Masson: *Stapeliae Novae*, 1796

1. *Piaranthus punctatus* (Masson) R. Brown, Mem. Wern. Soc., i. 23. 1811.

Stapelia punctata Masson, Stap. Nov., 18. 1796.

Obesia punctata Haworth, Syn. Pl. Succ., 43. 1812.

Caralluma punctata Schlechter, Journ. Bot., 478. 1898.

(Description by Dr. N. E. Brown, Flora Cap., iv. i. 1017):

Stems: decumbent or ascending, 1 to 2 in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. thick, oblong or somewhat clavate, very obtusely 4-angled, with 4 or 5 small tubercle-like teeth along each angle, glabrous, dull green;

Flowers: 2 to 4 together above the middle of the stems, erect;

*Pedice*l: $\frac{1}{2}$ to 1 in. long, glabrous, purplish;

Sepals: lanceolate, acute, glabrous;

Corolla: with a distinct shortly campanulate tube $1\frac{1}{2}$ to 2 lin. long; lobes about 4 lin. long, $1\frac{1}{2}$ lin. broad, lanceolate, acute, spreading, papillate (puberulous?) on the inner face, whitish (faintly tinged with pink according to the figure), dotted with blood-red (or brownish-red, W. & S.).

Type locality Cape Prov.: Little Namaqualand: without precise locality

Distribution: Also in Laingsburg and Van Rhynsdorp districts.

The "dotted *Piaranthus*" was first obtained by Masson from Little Namaqualand and flowered in his "little garden at the Cape" in 1790. It was not collected again until 1930-31, when it was rediscovered by J. Archer in Little Namaqualand and by C. Luckhoff in the Laingsburg and Van Rhynsdorp districts. The plant is the first of the three species of *Piaranthus*,

whose flowers have a deep corolla-tube. The two others are *P. framesii*, which can be differentiated by its small corona mounted on a large pentagonal staminal column, and *P. grivanus*, in which the inner face of the corolla is uniformly deep purple in color. The flowers of *P. punctatus* are very variable in the size of the spots on the corolla-lobes and tube, and still more so in



FIG. 791
Piaranthus punctatus R. Brown
(var. A) x 1.4
Photo by Carl Luckhoff.



FIG. 792
Piaranthus punctatus R. Brown (var. C)
x 1.4
Photo by Carl Luckhoff.



FIG. 793
Piaranthus punctatus R. Brown
(var. B) x 1.4
Photo by Carl Luckhoff.

the details of the corona structure. Mr. Luckhoff has sent us photographs of four main types of the flowers, with drawings of their coronas. As Masson's original de-

scription made no mention of the corona, it is impossible to determine which of these varieties, if any, represents his type.

Var. A. Spots on inner corolla face large; corona-lobes incumbent above the anthers, irregularly toothed with an irregularly 3-toothed dorsal crest. Distribution: Van Rhynsdorp Distr.: foot of the Bokkeveld Mts. on the road to Nieuwoudtville; Nieuwefontein, about 80 miles north of Van Rhynsdorp.

Var. B. Spots on inner corolla face large and widely spaced; corona-lobes connivent-erect, the tips separated and irregularly 3-toothed and very jagged, with a 2-toothed dorsal crest also with very jagged teeth. Distribution: Van Rhynsdorp Distr.: near Bitterfontein, 31 miles on the road from Bitterfontein to Springbok.

Var. C. Spots on inner corolla face delicate and rather crowded; corona-lobes meeting above the anthers, irregularly and very slightly toothed with a 2-toothed dorsal crest. Distribution: Little Namaqualand: without precise locality; Laingsburg Distr.: on the road from Laingsburg to Sutherland.

Var. D. Spots on inner corolla face as in var. A; corona-lobes connivent-erect and the tips close together, with a dorsal crest of 4 to 5 nearly equal teeth. Distribution: Little Namaqualand: without precise locality.

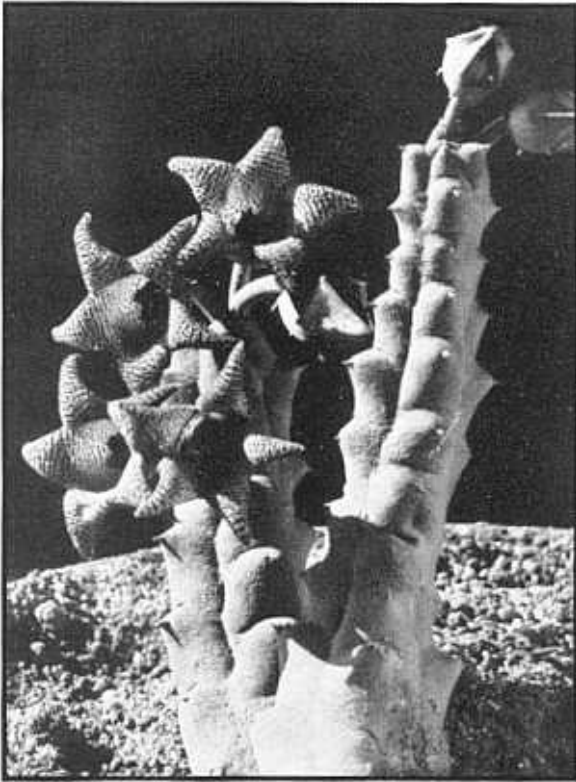


FIG. 794

Piaranthus punctatus R. Brown
(var. D) x 1.25

Photo by Carl Luckhoff.

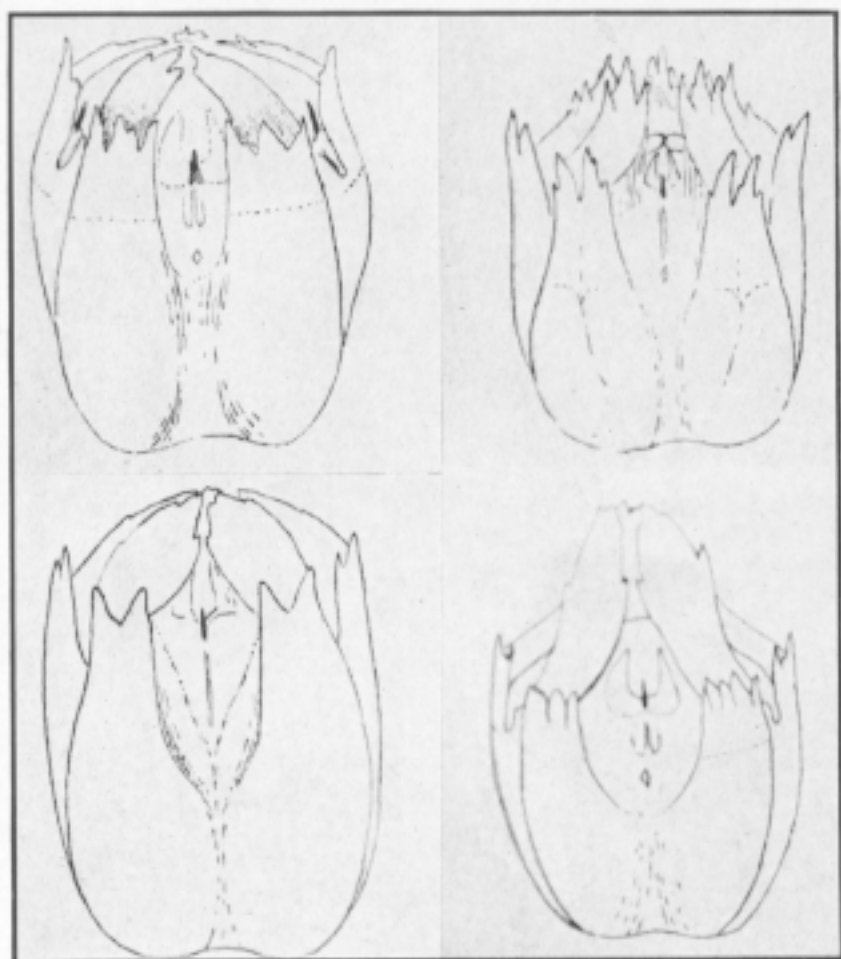


FIG. 795

Piaranthus punctatus R. Brown

Corona of var. A, upper left; var. B, upper right; var. C, lower left; and var. D, lower right. Drawings by Carl Luckhoff.

2. *Piaranthus framesii* Pillans, So. Afr. Gard., xviii. 62. (Special reprint). 1928.

(Description by N. S. Pillans, l.c., translated from the Latin):

Stems: ascending from a decumbent base, 3 to 4 cm. long, 1.2 to 1.4 cm. in diameter, obscurely 4 to 5-angled, tuberculate-toothed with the tubercles tipped with an acute small point which has a minute denticle at the base on either side, glabrous, glaucous-green, marked with deep green when young;

Flowers: 1 or 2 together, borne near the middle or on the upper half of the stems;

*Pedice*l: erect, 5 to 8 mm. long, thick, glabrous;

Sepals: $2\frac{1}{2}$ mm. long, ovate-lanceolate, acute, glabrous;

Corolla: 1.7 to 2 cm. in diameter when the lobes are in their normal position, outside glabrous; *tube* campanulate, $4\frac{1}{2}$ to $5\frac{1}{2}$ mm. long, whitish inside spotted with purple, with horizontal lines; *lobes* 7 to 8 mm. long, $3\frac{1}{2}$ to 5 mm. broad, erect-spreading, slightly recurved at the apex, deltoid-ovate, acute, convex above, concave on the lower half and beyond the entrance of the tube, rugulose, purple, with irregular thin whitish transverse lines, minutely papillate on the upper half and sides with dense deep purple papillae;

Corona: lobes about 1 mm. high set in the angles of the staminal column, oblong, rounded at the apex and slightly widened, closely incumbent on the anthers and scarcely exceeding them, yellow;

Staminal column: 3 to $3\frac{1}{2}$ mm. high, $4\frac{1}{2}$ to 5 mm. broad at the broadest part a little below the middle, 5-angled on the upper half, with vertical slightly compressed prominent angles, rounded-concave between the angles, fleshy, completely yellow.



FIG. 796

Piaranthus framesii Pillans x 1

Photo by Carl Luckhoff.

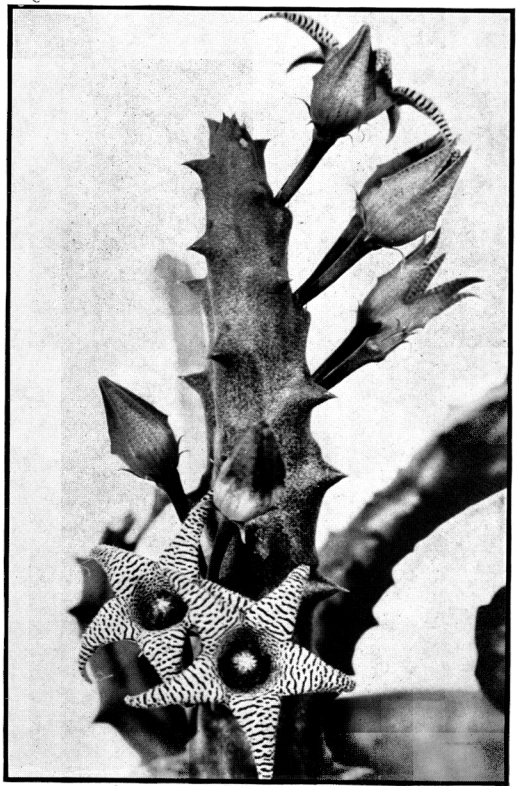


FIG. 797

Piaranthus framesii Pillans x 1.

Type locality: Cape Prov.: Van Rhynsdorp Distr.

Distribution: Not further known.

Discovered in 1926 by P. Ross-Frames, for whom it is named. It is related to *Piaranthus punctatus*, from which it differs chiefly in the shorter pedicels and broader corolla-lobes, which are concave down the lower half of the inner face and colored

purple with transverse whitish lines. The relatively large pentagonal staminal column is unlike any other known in the genus. The figures show the unusual depth of the corolla-tube.



FIG. 798

Piaranthus framesii Pillans x 1.75

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1935.

3. *Piaranthus grivanus* N. E. Brown, Icon. Pl., t. 1924-A. 1890.*Caralluma grivana* Schlechter, Journ. Bot., 479. 1898.

(Description by Dr. Brown, Flora Cap., iv. i. 1024):

Branches: $1\frac{1}{2}$ to 2 in. high, forking in all directions; "branchlets scarcely angular, but rather composed of aggregated tubercles, with a white spine at the end of the teeth" (*Barkly*); according to Miss Barkly's drawing the stems are 4-angled, with 3 to 4 conical finely pointed teeth 2 to 3 lin. long along each angle;

Flowers: solitary (always?) in the grooves between the angles below the middle of the stems;

Pedicel: not seen, "very short" (*Barkly*);

Sepals: $2\frac{1}{2}$ to nearly 3 lin. long, 1 lin. broad at the base, ovate, acuminate, with recurved tips, glabrous;

Corolla: "somewhat campanulate, a full inch from point to point, interior deep purple, almost black, with rough striae across; exterior nearly as green as the calyx, streaked with dark perpendicular stripes" (*Barkly*); in the only dried flower seen it is about $\frac{3}{4}$ in. in diameter, with a short and apparently broadly campanulate or cup-shaped tube, and de'toid-acute lobes 3 to $3\frac{1}{2}$ lin. long and $2\frac{3}{4}$ to 3 lin. broad at the base, glabrous on both sides and not ciliate;

Corona: lobes about 2 lin. long, 1 to $1\frac{1}{4}$ lin. broad, ovate (not quite as figured), acuminate, closely incumbent upon the backs of the anthers and exceeding them, dorsally produced at the base into a short transverse crest, which is apparently flattened on the top and slightly crenate on the subtruncate hind margin, "reddish-brown" (*Barkly*).

Type locality: Cape Prov.: Griqualand West: Griva.

Distribution: Not further known.

Brought from near Griva, in Griqualand West, by David Arnot to Sir Henry Barkly, but never collected since and not in cultivation. The description of this remarkable plant, with its campanulate flowers, almost black and rugose on the inner corolla surface, has long aroused curiosity and some doubts as to its proper

inclusion as a *Piaranthus*. Dr. Schlechter transferred it to *Caralluma* along with several others of the *Piaranthus* genus, but the single corona, with its short dorsal crest at the base, would seem sufficiently characteristic to make its retention as a *Piaranthus* advisable, at least until the plant is again collected and becomes better known.

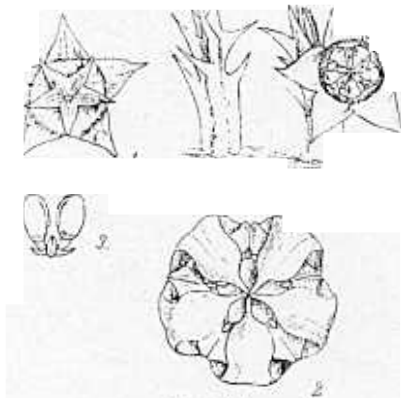


FIG. 799

Piaranthus grivanus N. E. Brown x 1
From Hooker's Icones Plantarum. 1890.

4. *Piaranthus cornutus* N. E. Brown, Flora Cap., iv. i. 1018. 1909.

(Description by Dr. Brown, l.c.):

Stems: procumbent or ascending, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, $\frac{1}{2}$ to $\frac{2}{3}$ in. thick, globose or oblong, very obtusely 4-angled, with 3 to 5 tubercle-like teeth along the angles, greyish or glaucous-green;*Flowers*: in pairs above the middle or at the tips of the stems, erect;*Pedice*l: $\frac{1}{4}$ to $\frac{3}{4}$ in. long, glabrous;*Sepals*: $\frac{1}{8}$ in. long, lanceolate, acute, glabrous;*Corolla*: very deeply lobed, without a distinct tube; *lobes* about 5 lin. long, $1\frac{1}{2}$ lin. broad at the base, lanceolate, acuminate, glabrous on the back, velvety-puberulous on the inner face, very pale yellowish or whitish, dotted with purple (or crimson?);*Corona*: lobes about 1 lin. long, narrowly linear-lanceolate or lanceolate-subulate, incumbent at the base upon the backs of the anthers and produced beyond them into connivent-erect acute tips, dorsally produced at the base into a subquadrate crest, truncate and tuberculate-denticulate at the top, yellow, without markings.

Type locality: Cape Prov.: Little Namaqualand: without locality.

Distribution: Not further known.

The "horned *Piaranthus*" appropriately get its name from the striking corona-lobes, which are continued above the anthers in connivent-erect acute tips, like the horns of some miniature antelope. It is one of the five species of *Piaranthus*, in which the flowers have no prominent corolla-tube, while the corona-lobes considerably sur-

pass the anthers. The 1-inch pale yellow flowers are dotted in purple or crimson. The plant was first collected in Sir Henry Barkly's day. It much resembles *P. decorus*, to which species Dr. Brown first referred it in Hooker's *Icones Plantarum*, 1890. The principal difference lies in the form of the corona.

Var. a. *Piaranthus cornutus* var. *grandis* N. E. Brown, Flora Cap., iv. i. 1018. 1909.

Type locality: Cape Prov.: Victoria West Distr.: near Victoria West.

Distribution: Not further known.

This variety differs from the type only in that the corolla-lobes are 6 to 7 lin. long, instead of only 5 lin. Its color is not known.

5. *Piaranthus mennellii* Luckhoff, So. Afr. Gard., 95. 1935.

(Description based on that by C. Luckhoff, l.c.):

Stems: tufted, subglobose or oblong, obtusely 4-angled, with small teeth, glabrous, green;

Flowers: 2 to 6 together, near the tips of the stems;

*Pedice*l: erect, glabrous;

Sepals: linear-lanceolate, acuminate, glabrous;

Corolla: subrotate, without a distinct tube, glabrous on the back, inner face velvety-pubescent with white and purple hairs, very pale yellow, with scattered pale purple spots; lobes less than $4\frac{1}{2}$ lin. long and less than 2 lin. broad at the base, with revolute margins;

Corona: lobes linear-subulate, with short freely erect tips, entire or denticulate, with a 4-toothed dorsal expansion, the lateral teeth larger than the middle teeth.

Type locality: Cape Prov.: Kenhardt Distr.: near Theronville.

Distribution: Not further known.

"Mennell's *Piaranthus*" is the first of two interesting new species of *Piaranthus* discovered in 1934 by Brian T. Mennell of Louisvale. The corolla is deeply cleft and there is no corolla-tube. The small pale yellow spotted flowers are borne in clusters of two to six at the tips of the stems. The nearest relatives of the species are *Piaranthus pallidus*, *P. disparilis* and especially

P. pulcher var. *nebrownii*. Comparing *P. mennellii* with the last-named, Mr. Luckhoff says: "The corolla-lobes are shorter and narrower, and never have the purple edging which is always present in *P. pulcher* var. *nebrownii*; the corona is also distinctive, by reason of its 4-toothed dorsal crest, with side teeth larger than the middle ones."

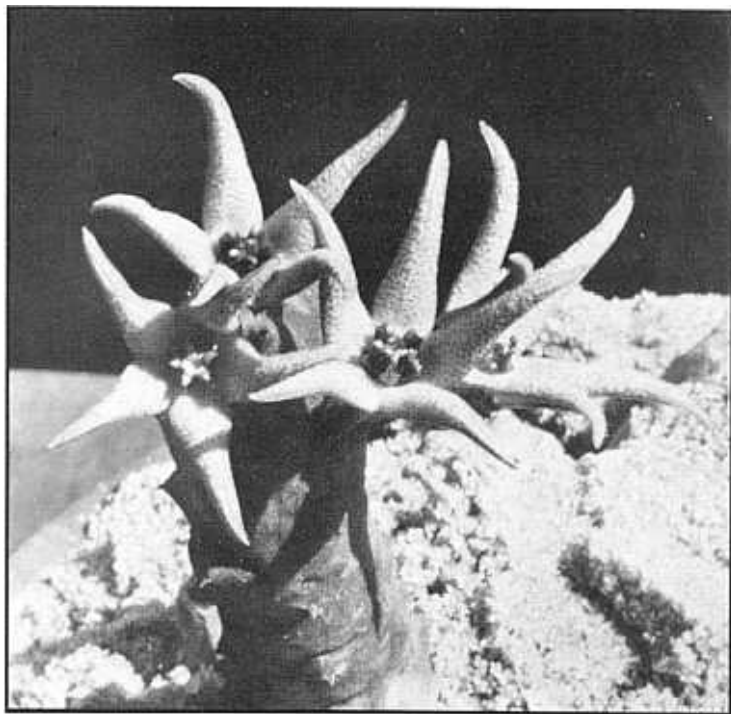


FIG. 800

Piaranthus mennellii
Luckhoff x 3.

Photo by Dr. J. Luckhoff, in
South African Gardening and
Country Life, 1935.

4. *Piaranthus cornutus* N. E. Brown, Flora Cap., iv. i. 1018. 1909.

(Description by Dr. Brown, l.c.):

Stems: procumbent or ascending, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, $\frac{1}{2}$ to $\frac{2}{3}$ in. thick, globose or oblong, very obtusely 4-angled, with 3 to 5 tubercle-like teeth along the angles, greyish or glaucous-green;

Flowers: in pairs above the middle or at the tips of the stems, erect;

*Pedice*l: $\frac{1}{4}$ to $\frac{3}{4}$ in. long, glabrous;

Sepals: $\frac{1}{8}$ in. long, lanceolate, acute, glabrous;

Corolla: very deeply lobed, without a distinct tube; *lobes* about 5 lin. long, $1\frac{1}{2}$ lin. broad at the base, lanceolate, acuminate, glabrous on the back, velvety-puberulous on the inner face, very pale yellowish or whitish, dotted with purple (or crimson?);

Corona: lobes about 1 lin. long, narrowly linear-lanceolate or lanceolate-subulate, incumbent at the base upon the backs of the anthers and produced beyond them into connivent-erect acute tips, dorsally produced at the base into a subquadrate crest, truncate and tuberculate-denticulate at the top, yellow, without markings.

Type locality: Cape Prov.: Little Namaqualand: without locality.

Distribution: Not further known.

The "horned *Piaranthus*" appropriately get its name from the striking corona-lobes, which are continued above the anthers in connivent-erect acute tips, like the horns of some miniature antelope. It is one of the five species of *Piaranthus*, in which the flowers have no prominent corolla-tube, while the corona-lobes considerably sur-

pass the anthers. The 1-inch pale yellow flowers are dotted in purple or crimson. The plant was first collected in Sir Henry Barkly's day. It much resembles *P. decorus*, to which species Dr. Brown first referred it in Hooker's *Icones Plantarum*, 1890. The principal difference lies in the form of the corona.

Var. a. *Piaranthus cornutus* var. *grandis* N. E. Brown, Flora Cap., iv. i. 1018. 1909.

Type locality: Cape Prov.: Victoria West Distr.: near Victoria West.

Distribution: Not further known.

This variety differs from the type only in that the corolla-lobes are 6 to 7 lin. long, instead of only 5 lin. Its color is not known.

5. *Piaranthus mennellii* Luckhoff, So. Afr. Gard., 95. 1935.

(Description based on that by C. Luckhoff, l.c.):

Stems: tufted, subglobose or oblong, obtusely 4-angled, with small teeth, glabrous, green;

Flowers: 2 to 6 together, near the tips of the stems;

*Pedice*l: erect, glabrous;

Sepals: linear-lanceolate, acuminate, glabrous;

Corolla: subrotate, without a distinct tube, glabrous on the back, inner face velvety-pubescent with white and purple hairs, very pale yellow, with scattered pale purple spots; lobes less than $4\frac{1}{2}$ lin. long and less than 2 lin. broad at the base, with revolute margins;

Corona: lobes linear-subulate, with short freely erect tips, entire or denticulate, with a 4-toothed dorsal expansion, the lateral teeth larger than the middle teeth.

Type locality: Cape Prov.: Kenhardt Distr.: near Theronville.

Distribution: Not further known.

"Mennell's *Piaranthus*" is the first of two interesting new species of *Piaranthus* discovered in 1934 by Brian T. Mennell of Louisvale. The corolla is deeply cleft and there is no corolla-tube. The small pale yellow spotted flowers are borne in clusters of two to six at the tips of the stems. The nearest relatives of the species are *Piaranthus pallidus*, *P. disparilis* and especially

P. pulcher var. *nebrownii*. Comparing *P. mennellii* with the last-named, Mr. Luckhoff says: "The corolla-lobes are shorter and narrower, and never have the purple edging which is always present in *P. pulcher* var. *nebrownii*; the corona is also distinctive, by reason of its 4-toothed dorsal crest, with side teeth larger than the middle ones."

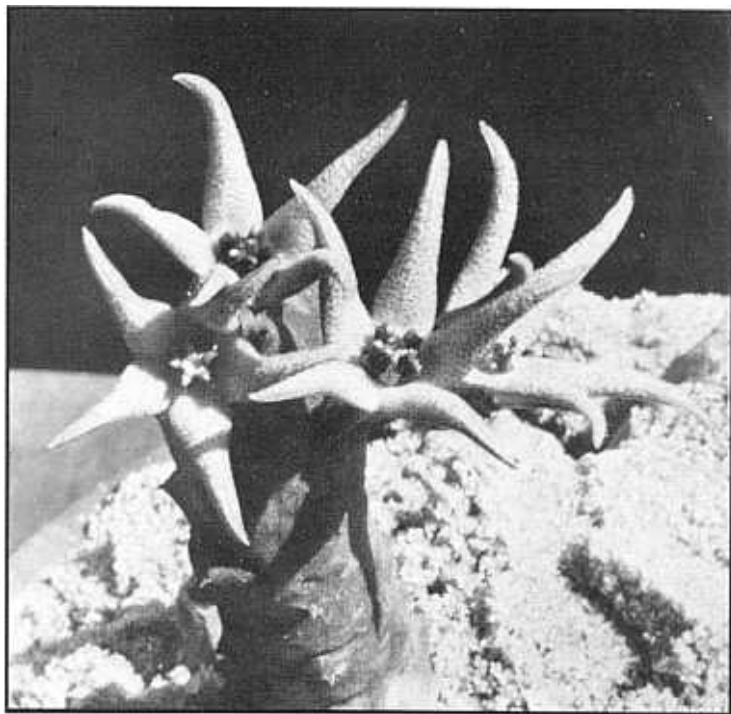


FIG. 800

Piaranthus mennellii
Luckhoff x 3.

Photo by Dr. J. Luckhoff, in
South African Gardening and
Country Life, 1935.

6. *Piaranthus pulcher* N. E. Brown, Flora Cap., iv. i. 1022. 1909.

(Description by Dr. Brown, l.c.):

Stems: tufted, $\frac{1}{2}$ to 1 in. (or more?) long, $\frac{1}{3}$ to $\frac{1}{2}$ in. thick, subglobose or oblong, obtusely 4-angled, with small tubercle-like teeth, glabrous, greyish-green or somewhat glaucous;*Flowers*: 1 to 4 (often 2) together, near the middle or tips of the stems;*Pedicel*: erect, 3 to 6 lin. long, stout, thickened upwards, glabrous;*Sepals*: 2 lin. long, linear-lanceolate, acuminate, glabrous;*Corolla*: subrotate, without a distinct tube, $\frac{3}{4}$ in. in diameter, glabrous and dull greenish-brown on the back, inner face velvety-pubescent with white and purple hairs, bright clear greenish-yellow, marked all over with small rounded dark purple-brown spots; *lobes* not spreading horizontally, $4\frac{1}{2}$ to 5 lin. long, 2 lin. broad at the base, thence tapering in a nearly straight line to the apex, with revolute margins;*Corona*: lobes 1 lin. or rather more in length, linear-subulate, incumbent on the backs of and much exceeding the anthers, with short subdenticulate acute connivent-erect tips, dorsally produced at the base into a quadrate crest; flat and papillate on the top, clear deep yellow, without markings.

Type locality: South Africa: without locality, possibly from Colesberg Distr., Cape Prov.

Distribution: Not further known.

This "handsome *Piaranthus*," with its bright greenish-yellow flowers, dotted all over in purple-brown, was discovered by Dr. Shaw about 1873. It has not been collected since and its habitat is unknown;

but more recently a nearly related plant was found by Prof. Dinter in South West Africa, which he considered as a distinct species, but which should perhaps rather be considered as a variety.

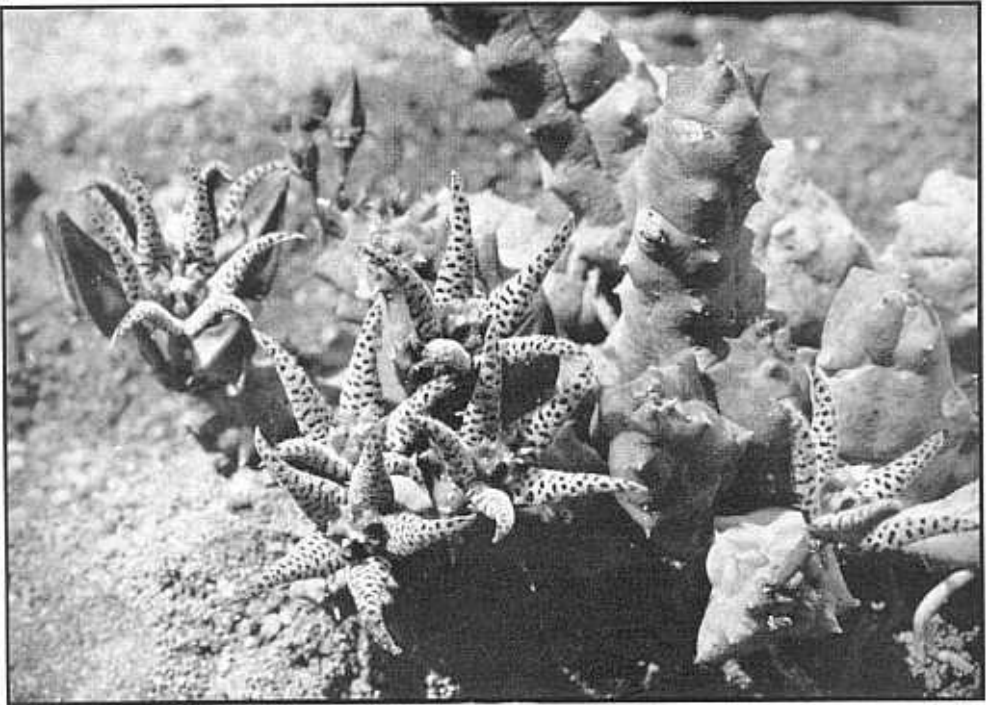


FIG. 801

Piaranthus pulcher var. *nebrownii*, comb. nov. x 2.

Photo by Carl Luckhoff.

Var. a. *Piaranthus pulcher* var. *nebrownii* (Dinter), comb. nov.

Piaranthus nebrownii Dinter, Neue Pfl. Deutsch-Südwest-Afr., 47. 1914.

Type locality: South West Africa: Klein Karas.

Distribution: Also Cape Prov.: Little Namaqualand: north of Springbok.

Prof. Dinter only says of this plant (l.c., translated from the German): "It is separated from *P. pulcher* only through the corona-lobes, which are not incumbent upon the anthers, but freely ascending and at the tips curving outwards, whereas in *P. pulcher* they are described as having convinent-erect tips." Our collaborator, C. Luckhoff, who has collected this variety in

Little Namaqualand, adds: "Aside from the modification in the corona, the corolla is of a rather more rigid texture than in the type and the corolla-lobes are bordered with a dark purple-brown edging." This variety, which was named for Dr. N. E. Brown, was the first form of *Piaranthus* to have been found in South West Africa or at any point outside of the Cape Province.



FIG. 801-A

Dr. John Shaw

From Maskew Miller: History of the South African College, 1918.

Prior to 1874, Dr. Shaw was head master of a School in Colesberg, and from 1874 until his sudden death in 1890 he was head master of the College School of the South African College, Capetown, and he performed a notable work in raising the standard and reputation of the institution over which he presided. He is remembered as a very familiar figure about the College grounds, active in many branches of the natural sciences, especially in botany and geology. While at Colesberg, Dr. Shaw interested himself in collecting Stapeliads, doubtless under the inspiration of Sir Henry Barkly.

7. *Piaranthus parvulus* N. E. Brown, Flora Cap., iv. i. 1023. 1909.

(Description by Dr. Brown, l.c.):

Stems: decumbent or ascending, $\frac{3}{4}$ to $1\frac{3}{4}$ in. long, 4 to 7 lin. thick, oblong or ovoid-oblong, obtusely 4-angled, with 3 to 5 tubercle-like apiculate teeth $\frac{3}{4}$ to $1\frac{1}{2}$ lin. long along each angle, greyish-green or perhaps slightly glaucous (sometimes dull light green under cultivation), tinged or mottled with purple;

Flowers: gradually developing up to 12 in number from the same point, but seldom more than 2 or 3 open together in the same fascicle, often 2 or 3 fascicles to a stem, at the middle or top;

Pedicel: erect, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, rather slender, glabrous;

Sepals: $\frac{3}{4}$ lin. long, lanceolate, acute, glabrous;

Corolla: rotate, without a distinct tube, 5 to 6 lin. in diameter; *lobes* very spreading, 2 to $2\frac{1}{2}$ lin. long, 1 to $1\frac{1}{4}$ lin. broad at the base, deltoid-lanceolate, acute, glabrous on the back, velvety-puberulous on the inner face, not ciliate, straw-yellow without spots;

Corona: lobes $\frac{3}{4}$ to 1 lin. long, much overtopping the staminal column, in some plants connivent with recurved-hooked tips, in others erect with the upper half doubly curved, first backwards and downwards and then upwards or outwards and then inwards, acute, or irregularly 2 to 3-toothed at the apex, with a thick convex or truncate dorsal crest at their base, minutely tuberculate all over its top.

Type locality: Cape Prov.: Laingsburg
Distr.: near Matjesfontein.

Distribution: Also Laingsburg Distr.: 3 miles S. W. of Laingsburg; Prince Albert Distr.: near Grootfontein.

The "tiny *Piaranthus*" was discovered by Mr. Pillans in the westerly Great Karroo. Its $\frac{1}{2}$ -inch straw-yellow flowers are, with those of *P. mennellii*, the smallest of any species in the genus. The form of the somewhat variable corona-lobes, which are produced much above the anthers, relates *P.*



FIG. 802

Piaranthus parvulus N. E. Brown x 1.25

Photo by Carl Luckhoff.

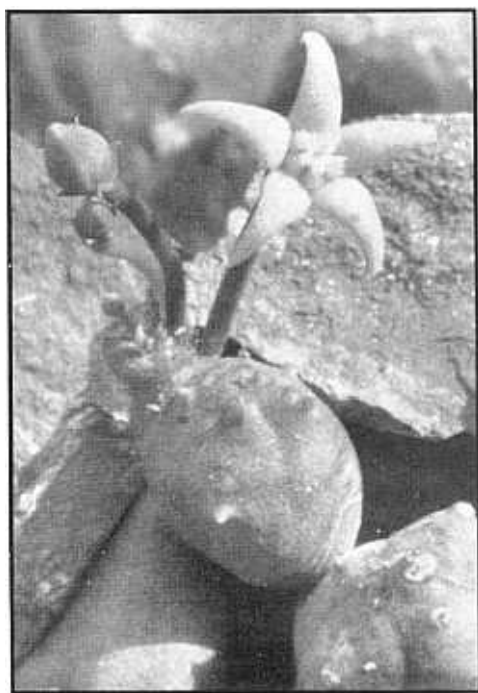


FIG. 803

Piaranthus parvulus N. E. Brown x 2.5

Photo by Herbert Lang.

parvulus to *P. cornutus* and *P. pulcher*, but the entire absence of spots on the inner face of the corolla serves completely to differentiate it from these two larger-flowered species.

8. *Piaranthus pallidus* Luckhoff, So. Afr. Gard., 95. 1935.

(Description based on that by C. Luckhoff, l.c.):

Stems: globose, subglobose or oblong, very obtusely 4-angled, glabrous, green;

Flowers: in clusters of 2 to 4, arising at or near the apex of the stems;

*Pedice*l: 6 to 12 mm. long, glabrous;

Sepals: 2 mm. long, lanceolate, acuminate, recurved at the tips, glabrous;

Corolla: rotate, without a distinct tube; *lobes* up to 13 mm. long, lanceolate, acuminate, convex from the margins being slightly recurved, glabrous on the back, velvety-puberulous on the inner face, not ciliate, pale yellow without spots;

Corona: lobes 2 mm. long, with the tips freely erect, yellow, without markings, lanceolate or linear-oblong, bifid or irregularly toothed at the apex, dorsally raised into a 3 to 5-toothed crest.

Type locality: Cape Prov.: Kenhardt Distr.: near Theronville.

Distribution: Not further known.

The "pale *Piaranthus*" was discovered in 1934 by Brian T. Mennell of Louisvale near Theronville. It is closely related to *Piaranthus disparilis*, differing from the type of that species chiefly by the pale spotless corolla and by the corona-lobes, which

have freely erect tips. In coloration it more closely approaches *P. disparilis* var. *immaculatus*, but that variety can also be readily distinguished by its corona-lobes, which are closely incumbent on the anthers, with the tips in no way raised.



FIG. 804

Piaranthus pallidus Luckhoff x 2.

Photo by Carl Luckhoff, in South African Gardening and Country Life, 1935.

9. *Piaranthus comptus* N. E. Brown, Icon. Pl., t. 1924-B. 1890.*Caralluma compta* Schlechter, Journ. Bot., 479. 1898.

(Description by Dr. Brown, Flora Cap., iv. i. 1023):

Stems: tufted, erect or decumbent, $\frac{3}{4}$ to 1 (or under cultivation up to 3) in. long, 4 to 7 lin. thick, obtusely 4-angled, with the teeth along the angles tubercle-like, apiculate, sometimes rather obscure, dull green or greyish-green, subglaucous;

Flowers: 1 to 4 (often 2) together, between the angles, near or at the apex or sometimes near the middle of the stem, erect;

*Pedice*l: 2 to 6 lin. long, glabrous;

Sepals: $\frac{3}{4}$ to $1\frac{1}{2}$ lin. long, ovate or lanceolate, acuminate, glabrous;

Corolla: rotate, 7 to 9 lin. in diameter, glabrous and dull greenish or greenish-brown outside, shortly pubescent all over the inner face, not ciliate, whitish, marked all over with small round dark purple-brown spots; *disk* flattish; *lobes* $2\frac{1}{2}$ to $3\frac{1}{2}$ lin. long, 2 lin. broad at the base, ovate-lanceolate, acute or acuminate, slightly convex from the margins being slightly recurved;

Corona: lobes closely incumbent on the backs of the anthers and not prolonged beyond them, $\frac{3}{4}$ to 1 lin. long, linear or linear-lanceolate, acute, obtuse or subdentate at the apex, dorsally expanded at the base into a truncate minutely tuberculate or more or less bifid crest, with or without a small warted tubercle between the teeth at the top, entirely yellow or dotted with purple-brown.

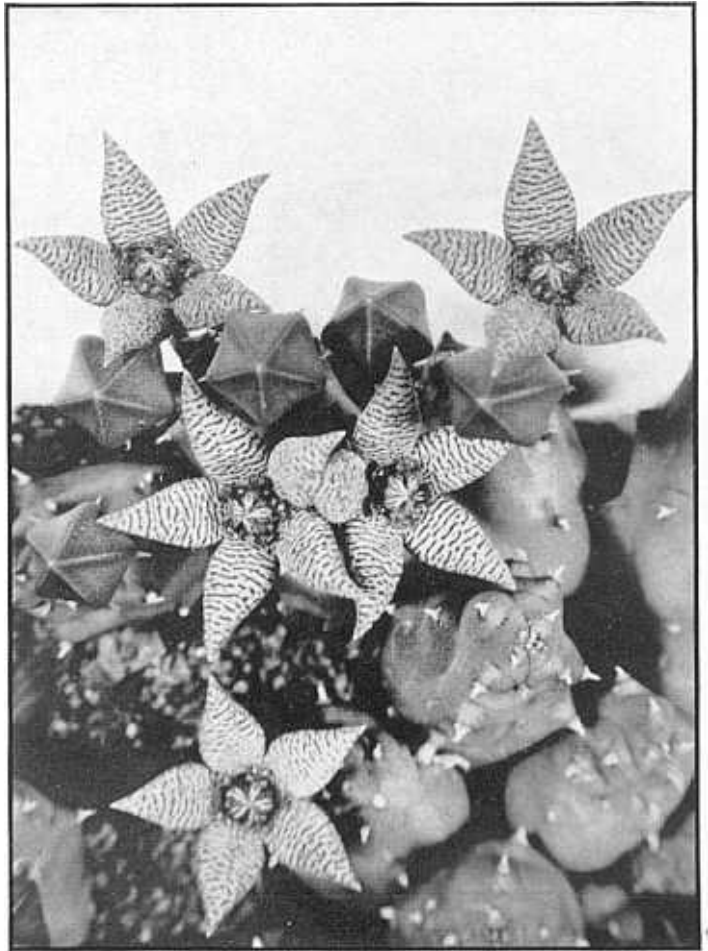


FIG. 805
Piaranthus comptus
N. E. Brown x 2.

Type locality: Cape Prov.: Beaufort West Distr.: near the Gamka River.

Distribution: Also Prince Albert Distr.: near Prince Albert; Karroo at Grootfontein; Little Namaqualand: without locality; Griqualand West: Hay Distr.: Postmasburg.

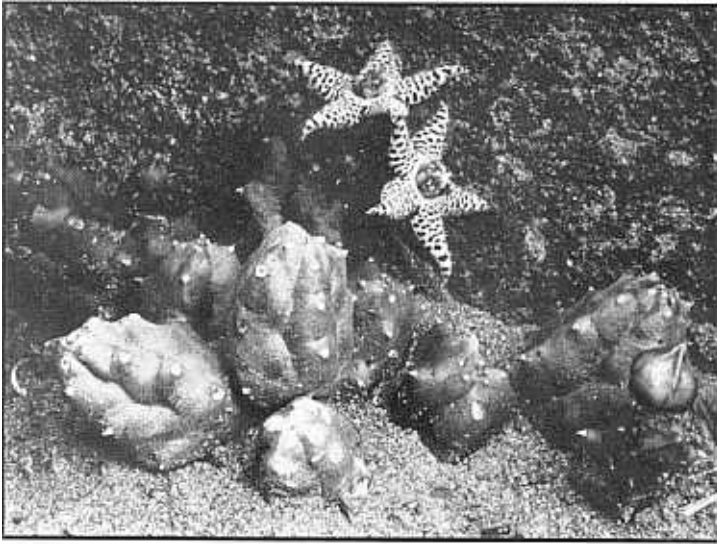


FIG. 806

Piaranthus comptus N. E. Brown x 1.5

Photo by S. Tapscott.

This is the first species in the third main division of *Piaranthus*, where the flowers are without a distinct corolla-tube and have the corona-lobes *incumbent* on the anthers or only very slightly up-curved at the tips. The name of the plant may be translated as the "ornamented *Piaranthus*." It refers to the pubescent white inner surface of the corolla, which is decorated throughout with dark purple-brown spots. Its habitat extends from the Great Karroo to Little Namaqualand and Griqualand West. It was discovered in 1841 in the westerly part of the Great Karroo by James Burke and Carl Zeyher, who found it on their return journey from the Transvaal, near the Gamka River, approximately at the same point where they also collected *Hoodia burkei*. "Here," wrote Zeyher in his diary,

"grew many species of . . . *Stapelia*, with very peculiar flowers." Dr. Brown said that the flowers have a sour odor, perceptible only at close range. A difficult point about the classification of *P. comptus* is that the corona-lobes are sometimes found entirely yellow and at other times yellow spotted with purple-brown. This requires entering the species twice in any key, such as ours, based on the corona color. The form of the corona and the size of the plant stems are also variable, but a series of flowers shows that the coronal differences fade into one another. Two extreme forms are shown in Fig. 808, the large stem bearing the flower whose corona is enlarged in the two dissections at the top of the figure, and the small-stemmed plant having the flower whose corona appears at the bottom.

Var. a. *Piaranthus comptus* var. *ciliatus* N. E. Brown, *Flora Cap.*, iv. i. 1023. 1909.

Type locality: Cape Prov.: Prince Albert Distr.: Grootfontein.

Distribution: Also from Laingsburg Distr.: near Laingsburg; Prince Albert Distr. Zeekoegat, 36 miles from Prince Albert.

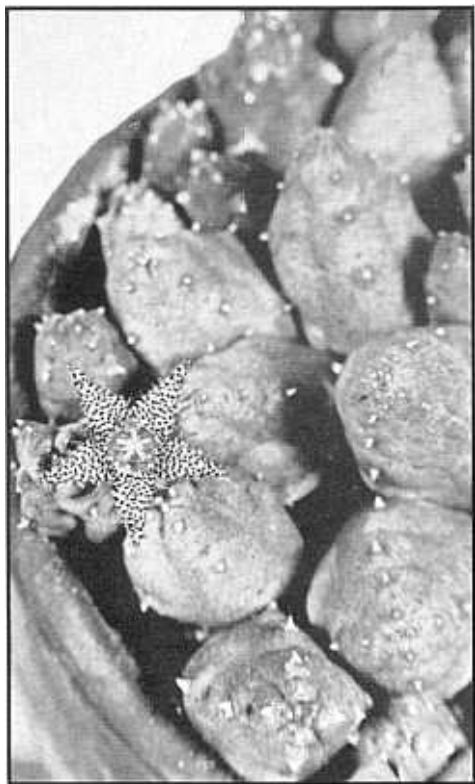


FIG. 807

Piaranthus comptus var. *ciliatus*
N. E. Brown x 1.5

This variety, according to Dr. Brown, differs from the type only in that "the corolla-lobes are ciliate with vibratile clavate hairs." Dr. Phillips, in describing this variety in the *Flowering Plants of South Africa*, 1932, says that it agrees closely with the description of the type, "but differs in such minor details from other named species that we suspect more species have been recognized than there actually are."

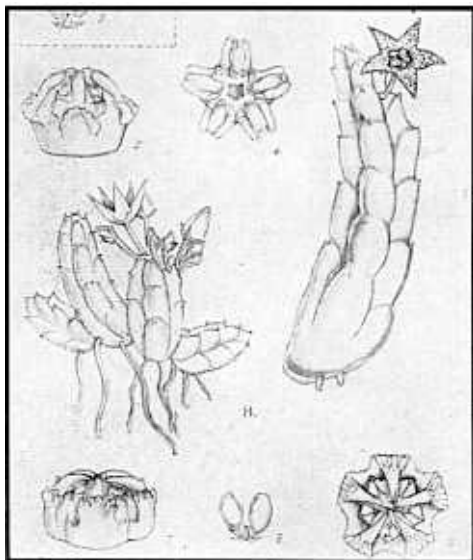


FIG. 808

Piaranthus comptus N. E. Brown x 1
From Hooker's *Icones Plantarum*, 1890.



FIG. 809

Piaranthus comptus var. *ciliatus*
N. E. Brown x 1.

From the original water color drawing by Miss Cythna Letty for the *Flowering Plants of South Africa*, 1932.

10. *Piaranthus disparilis* N. E. Brown, Flora Cap., iv. i. 1021. 1909.

(Description by Dr. Brown, l.c.):

Stems: not seen, "almost cylindrical, same color as the flowers" (*Pillans*), probably similar to those of *Piaranthus comptus* or *P. geminatus*;

Pedicel: $\frac{1}{4}$ to $\frac{1}{2}$ in. long, glabrous;

Sepals: 1 lin. long, lanceolate, acuminate, recurved at the tips, glabrous;

Corolla: rotate, without a distinct tube, 9 to 10 lin. in expanse; lobes $\frac{1}{3}$ in. long, $1\frac{3}{4}$ lin. broad at the base, lanceolate, acuminate, convex from the margins being slightly recurved, glabrous on the back, velvety-puberulous on the inner face, not ciliate, "pale pinkish-purple, finely marked with transverse pale yellow lines" (*Pillans*);

Corona: lobes $\frac{3}{4}$ lin. long, closely incumbent upon the backs of the anthers and shortly exceeding them, with the tips very slightly turned up, yellow, without markings, lanceolate or linear-oblong, entire or more or less distinctly 3-toothed at the apex, with the middle tooth much the longest and acute, dorsally produced at the base into a subquadrate crest, truncate and distinctly toothed at the top.

Type locality: Cape Prov.: Lāingsburg Distr.: under bushes between Ladismith and Laingsburg.



FIG. 810

Piaranthus disparilis N. E. Brown x 2.

Photo by Carl Luckhoff.

Distribution: Also collected on shales in Oudtshoorn Distr. (?): between Oudtshoorn and North Station.



FIG. 811

Piaranthus disparilis var. *immaculatus* Luckhoff x 2.

Photo by Carl Luckhoff.

A rare plant from the Little Karroo, discovered by N. S. Pillans. The name means the "dissimilar *Piaranthus*" and it suggests contrasts with other species. According to Dr. Brown, the flowers are similar to those of *Piaranthus pillansii*, but very much smaller, with the dorsal crest of the coronalobes distinctly toothed, not merely minutely tuberculate; and according to the Flowering Plants of South Africa, the

corona is similar to that of *P. geminatus*, but the corolla differs in the markings and the shape of the lobes. Mr. Luckhoff reports a "spotless variety," *Piaranthus disparilis* var. *immaculatus* Luckhoff, var. nov., differing from the type only in that the corolla is uniformly pale yellow. This variety is very nearly akin to *P. pallidus*, but may be distinguished by the corona-lobes, which are closely incumbent on the anthers.

11. *Piaranthus pillansii* N. E. Brown, Flora Cap., iv. i. 1019. 1909.

(Description by Dr. Brown, l.c.):

Stems: tufted, 1 to 1½ in. long, 5 to 8 lin. thick, decumbent, oblong or somewhat clavate-oblong, very obtusely 4 (rarely 5)-angled, or subcylindric, glabrous, dull light green, mottled or tinted with dull purple, angles not or scarcely tuberculate, with very minute apiculus-like teeth, having a more minute tooth on each side at the base;

Flowers: usually in pairs at the middle or upper part of the young stems, erect;

*Pedice*l: ¼ to ⅔ in. long, glabrous;

Sepals: ⅛ in. long, lanceolate, acute, glabrous;

Corolla: rotate, lobed nearly to the base, 1¼ to 1⅓ in. in diameter; *lobes* very spreading, ½ to ⅔ in. long, about 2 to 2½ lin. broad at the base, narrowly lanceolate, acute, convex from the margins being recurved, glabrous on the back, very shortly velvety-puberulous on the inner face, not ciliate, dull greenish-yellow or pale yellow without spots;

Corona: lobes rather more than 1 lin. long, closely incumbent upon the backs of the anthers and exceeding them, with their tips crossing each other but not becoming erect, lanceolate, acute, entire or somewhat 3-toothed at the apex, produced at the base into a truncate or very obtuse dorsal crest, minutely tuberculate or with ridges on the top, and the dorsal margin neither acute-edged nor toothed, yellow, without markings.

Type locality: Cape Prov.: Oudtshoorn Distr.: hills near Oudtshoorn.

Distribution: Also Willowmore Distr.: near Willowmore; Riversdale Distr.; Ladismith Distr.

This species from the Little Karroo is named for its discoverer, Mr. Pillans. Dr. Marloth describes it as having "a strong scent of Valerian." The color is dull greenish-yellow without markings; the var. *inconstans* is marked with light purple on an ochreous ground, sometimes so minutely

as to look pinkish-brown; and the var. *fuscatus* is dark purple with greenish-yellow lines. The flowers are the largest possessed by any *Piaranthus*, those of the var. *inconstans* being sometimes 1½ in. in diameter.

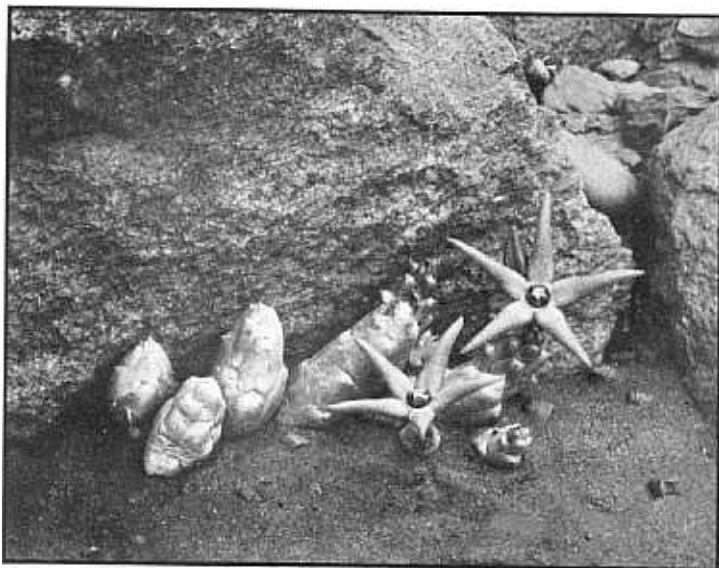


FIG. 812

Piaranthus pillansii
N. E. Brown

The identification is uncertain.
Photo by S. Tapscott.

Var. a. *Piранthus pillansii* var. *inconstans* N. E. Brown, Flora Cap., iv. i. 1019. 1909.

(Description by Dr. Brown, l.c.):

Corolla: $1\frac{1}{3}$ to $1\frac{1}{2}$ in. in diameter; lobes 7 to 9 lin. long, 2 lin. broad at the base, narrowly lanceolate or lanceolate-attenuate, densely dotted or transversely marked with light purple on an ochreous ground, sometimes so minutely as to look light pinkish-brown;

Corona: tips of the lobes not crossing and the dorsal margin of the crest sometimes toothed; Otherwise as in the type.

Type locality: Cape Prov.: Oudtshoorn Distr.: hills near Oudtshoorn.

Distribution: Also from Beaufort West Distr.: road between Beaufort West and Aberdeen.

Var. b. *Piранthus pillansii* var. *fuscatus* N. E. Brown, Flora Cap., iv. i. 1020. 1909.

(Description by Dr. Brown, l.c.):

Corolla: $1\frac{1}{4}$ to $1\frac{1}{3}$ in. in diameter; lobes about $\frac{1}{2}$ in. long, $2\frac{1}{2}$ lin. broad, lanceolate, acuminate, dark purple (or dark crimson?) with very numerous slender irregular transverse and labyrinthine greenish-yellow lines and markings;

Corona: tips of the lobes not crossing each other; Otherwise as in the type.

Type locality: Cape Prov.: Oudtshoorn Distr.: 9 miles along the road from Oudtshoorn to George.

Distribution: Not further known.



FIG. 813

Piранthus pillansii var. *inconstans*
N. E. Brown x 0.5

From the original water color drawing by Miss Cythna Letty for the Flowering Plants of South Africa, 1932.



FIG. 814

Piранthus pillansii var. *inconstans*
N. E. Brown x 1.6

Photo by Carl Luckhoff.

We believe Mr. Lang's striking photograph of this species represents the var. *fuscatus* rather than the type. It should be noted, however, that the description states that the corona-lobes do not overlap, whereas in the figure they clearly do so. It is perhaps uncertain whether this character is a constant one.



FIG. 815

Piaranthus pillansii var. *fuscatus* N. E. Brown x 2.25

Photo by Herbert Lang.

12. *Piранthus geminatus* (Masson) N. E. Brown, Journ. Linn. Soc., xvii. 163. 1878.*Stapelia geminata* Masson, Stap. Nov., 18. 1796.*Obesia geminata* Haworth, Syn. Pl. Succ., 42. 1812.*Podanthes geminata* Nicholson, Dict. Gard., iii. 172. 1886.*Caralluma geminata* Schlechter, Journ. Bot., 478. 1898.

(Description by Dr. Brown, Flora Cap., iv. i. 1018):

Stems: procumbent or decumbent, 1 to 1¾ in. long, ½ to ¾ in. thick, very obtusely or obscurely 4-angled with about 4 minute teeth ½ lin. long along each angle, glabrous, light green;*Flowers*: in pairs or solitary (rarely 3 or 4 together) at the tips of the stems;*Pedice*l: ¼ to ½ in. long, glabrous;*Sepals*: 1½ to 2 lin. long, ovate or ovate-lanceolate, acuminate, glabrous;*Corolla*: 1 to 1¼ in. in diameter, rotate, without a tube; *lobes* widely spreading, 5 to 7 lin. long, about 2 lin. broad at the base, lanceolate or gradually tapering to the acute apex, with revolute margins, glabrous on the back, velvety-puberulous all over the inner face, not ciliate, yellow, dotted with blood-red;*Corona*: lobes about 1 lin. long, linear-lanceolate or narrowly-oblong, acute or slightly toothed at the apex, closely incumbent upon the backs of the anthers and shortly exceeding them but not connivent-erect, dorsally produced at the base into a spreading crest entire or minutely sub-denticulate at the dorsal margin, flat or nearly so and not tuberculate on the top, the entire corona appearing (viewed from above) like a star with 5 short rounded lobes connected at the base, yellow.

Type locality: South Africa: without locality.

Distribution: Cape Prov.: Jansenville Distr.: Klipplaat.

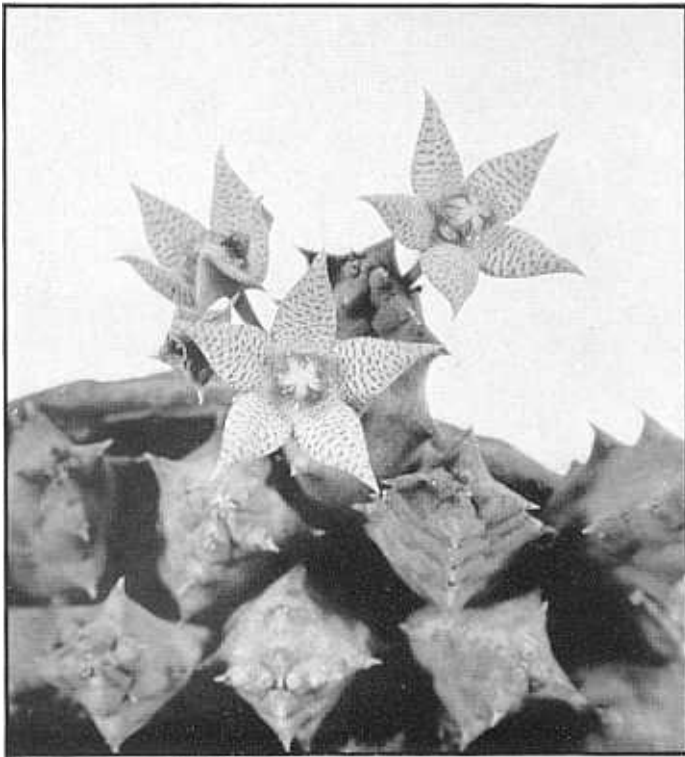


FIG. 816

Piранthus geminatus N. E. Brown x 1.

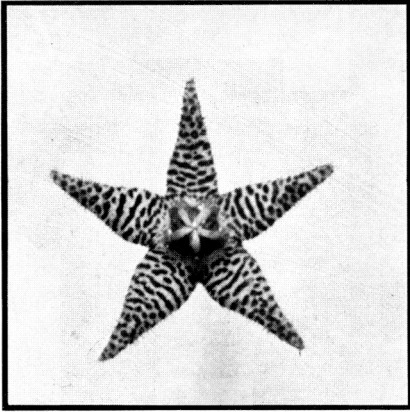


FIG. 817

Piaranthus geminatus N. E. Brown x 2.

Masson, who discovered the species, said only that its habitat was in hot regions of South Africa under shrubs. It has recently been rediscovered by C. A. Smith, in the Jansenville District, after having been lost to cultivation for a century. The name, the "twin *Piaranthus*," comes from the fact that the yellow flowers with their pretty blood-red spots grow in characteristic pairs at the tips of the little egg-shaped stems. This twin-flowering tendency manifests itself in several other species of *Piaranthus*, notably in *P. comptus*, *P. cornutus*, *P. decorus*, *P. pillansii* and *P. pulcher*.

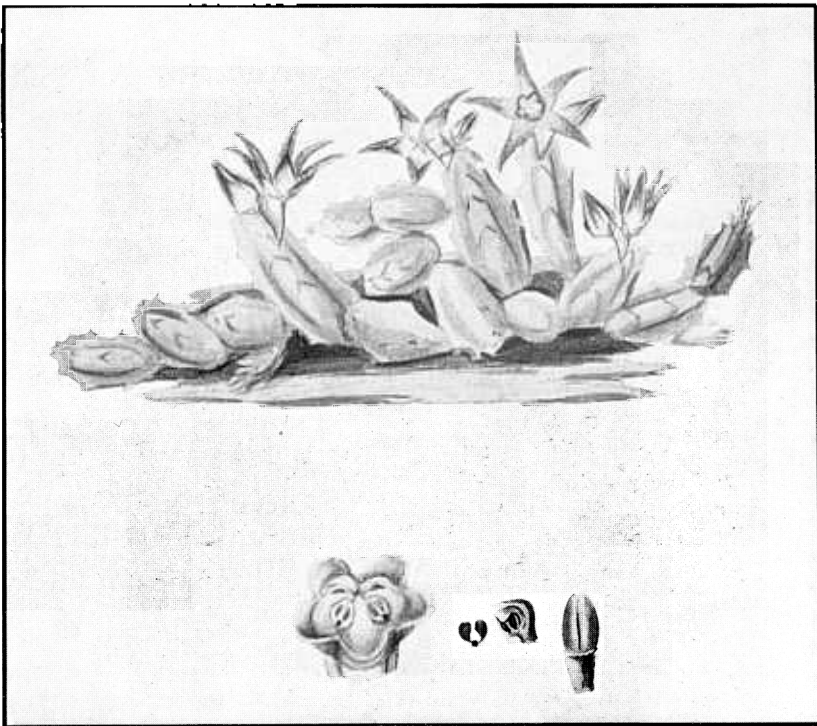


FIG. 818

Piaranthus geminatus N. E. Brown x 0.75From Jacquin: *Stapeliarum Descriptiones*, 1806-19.

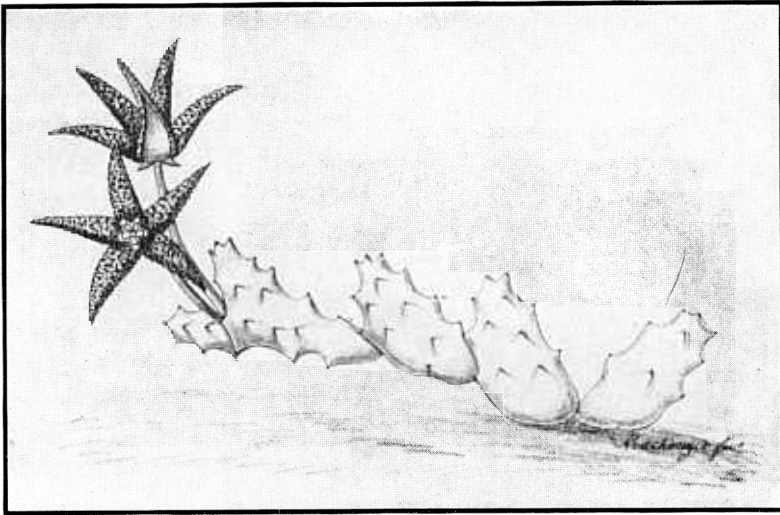


FIG. 819

Piaranthus decorus N. E. Brown x 1From Masson: *Stapeliae Novae*, 1796.

13. *Piaranthus decorus* (Masson) N. E. Brown, Journ. Linn. Soc., xvii. 163. 1878.

Stapelia decora Masson, Stap. Nov., 19. 1796.*Stapelia serrulata* Jacquin, Stap., t. 17. 1806-19.*Obesia decora* Haworth, Syn. Pl. Succ., 43. 1812.*Obesia serrulata* Sweet, Hort. Brit., 1 Ed., 278. 1827.*Caruncularia serrulata* G. Don, Gen. Hist., iv. 122. 1838.*Orbea decora* Steudel, Nom. Bot., 2 Ed., ii. 222. 1841.*Caruncularia serrata* Decaisne, de Candolle: Prodr., viii. 658. 1844.*Piaranthus serrulatus* N. E. Brown, Journ. Linn. Soc., xvii. 163. 1878.*Caralluma decora* Schlechter, Journ. Bot., 478. 1898.*Caralluma serrulata* Schlechter, Journ. Bot., 478. 1898.(Description by Dr. Brown, *Flora Cap.*, iv. i. 1020):

Stems: decumbent, 1 to 1½ in. long, or under cultivation sometimes very much longer, ½ to ¾ in. thick, obscurely or very obtusely 4-angled, oblong, with 3 to 5 small tubercle-like teeth along each angle, glabrous, greyish-green, or under cultivation green, slightly glaucous;

Flowers: in pairs above the middle of the stems, erect;

*Pedice*l: ½ to ¾ in. long;

Sepals: about 1½ lin. long, ovate-lanceolate, acute or acuminate, glabrous;

Corolla: 1 to 1¼ in. in diameter, rotate, without a distinct tube, lobed to ¾ of the way down; lobes 5 to 6 lin. long, 2 lin. broad at the base, lanceolate, acute, with revolute margins at the apical part, glabrous on the back, velvety-puberulous on the inner face, not ciliate, yellowish, dotted with dark purple-brown;

Corona: lobes about 1 lin. long, closely incumbent upon the backs of the anthers and shorter than or slightly exceeding them, lanceolate or ovate, varying (even in the same flower) from acute to irregularly toothed at the apex, dorsally produced at the base into a short transversely rectangular crest, truncate or irregularly toothed at the rather acute-edged dorsal margin, with slight ridges from the edge to the inflexed part of the lobe, yellow, not spotted.

Type locality: South Africa: without precise locality.

Distribution: Cape Prov Swellendam Distr. Barrydale; Oudtshoorn Distr. Calitzdorp; Ladismith Distr.

The "decorated *Piaranthus*" is happily named, for the corollas of its flowers are gay with dark purple-brown dots on a yellow ground. The species was long included among the lost plants of Francis Masson. It flowered in his little garden in 1794, and he thought it might prove to be a variety of *Piaranthus geminatus*, from which it differs mainly in the color of the corolla markings. However, the botanists who have seen it in bloom are agreed in keep-

ing it as a distinct species. The flowers also resemble those of *P. foetidus*, from which they can be distinguished by their coronalobes, as these are wholly yellow and without any of the marginal purple-brown markings characteristic of *P. foetidus*.

After *P. decorus* was introduced in Europe it remained in cultivation for about 30 years and then vanished completely. It was first rediscovered by P. Ross-Frames near Barrydale in 1928.

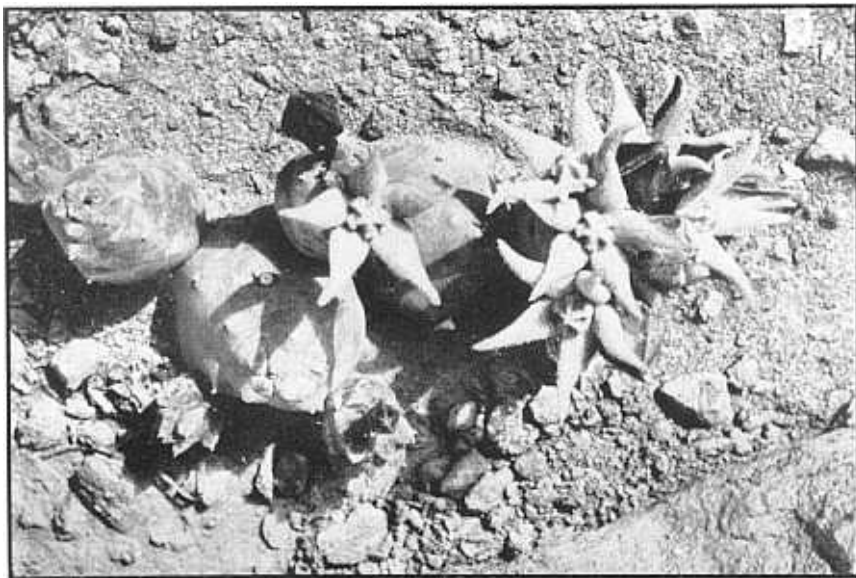
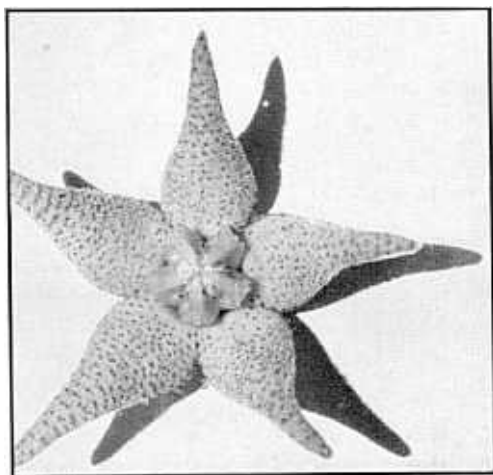


FIG. 820
Piaranthus ruschii Nel
Photo by E. Rusch, Jr.



This species was received by us while the present book was in the printer's hands, and it could unfortunately not be included in the Key.

FIG. 821
Piaranthus ruschii Nel
Photo by E. Rusch, Jr.



FIG. 822

Piранthus ruschii Nel

Photo by G. C. Nel.

***Piранthus ruschii* Nel, sp. nov.**

(Description by Dr. G. C. Nel):

Caulis carnosus, procumbentes vel erecti, oblongi vel subglobosi, 4-angulati, dentibus deltoideis muniti, glabri, griseo-virides. Flores 2-3 ex apice erumpentes. Sepala lanceolata, acuta. Corolla rotata; lobi ovato-lanceolati, viridi-lutei, atro-purpureo-maculati, spinis albis multis muniti; petala extus glabra. Coronae segmenta linearia, apiculata, ad dorsum multidentato-cristata, antheris incumbentia haud eas excedentia.

Stems: procumbent or erect, 1 to 1.8 cm. long, 8 to 12 mm. thick, oblong to subglobose, very obtusely 4-angled, each tubercle ending in a short deltoid tooth, which has two minute denticles at the base, greyish-green, glabrous;

Flowers: in pairs or threes from apex of stems;

Pedice: 5 mm. long, cylindrical, glabrous;

Sepals: 3 mm. long, lanceolate, acute;

Corolla: in bud conical, 1 cm. long, angles fairly prominent; when expanded rotate, without a distinct tube; lobes 1.1 cm. long, 4 mm. broad, ovate-lanceolate, acute, greenish-yellow with numerous black-purple spots, upper surface covered with numerous short white hairs;

Corona: yellow; lobes linear, apiculate, incumbent on the anthers but hardly meeting at the centre, with a multidentate crest on the back at about the middle.

Type locality: South West Africa: Pockenbank, near Lüderitz Bay.

Distribution: Not further known.

"This species," writes Dr. G. C. Nel, "is named after its discoverer, Ernst Rusch, to whose indefatigable enthusiasm we owe a large number of succulent plants from South West Africa. It flowered in the University Botanical Garden, Stellenbosch,

April 6, 1936. It is closely allied to *P. foetidus*, but differs in two respects: first, it possesses a very peculiar pleasant odor, somewhat resembling ripe fruit; and, second, the lobes are covered with short white hairs, visible to the naked eye."

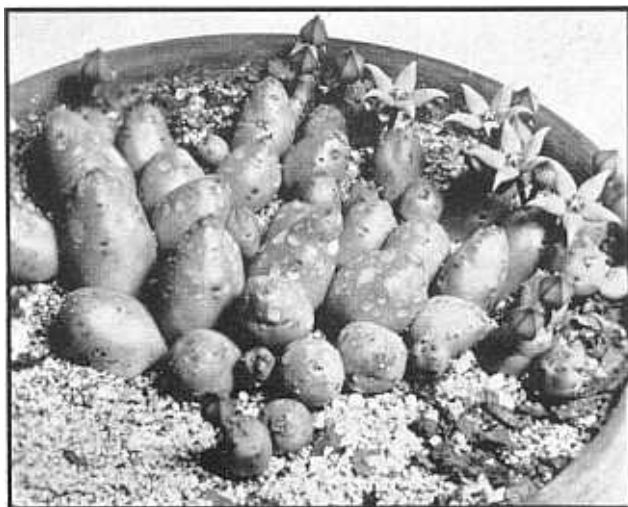


FIG. 823

Piaranthus globosus, sp. nov. x 0.7514. *Piaranthus globosus*, sp. nov.

(Description by A. White and B. L. Sloane):

Species parviflora, corolla circa 13 mm. lata, cauliculis globosis insignis. *Piaranthum parvulum* corollae loborum colore basico revera luteo, liceat primo intuitu maculis violaceo-purpureis minutissimis percrebrisque roseato, in mentem vocat, a quo coronae forma, lobis antheris incumbentibus neque erectis recurvisve, longe discrepat.

Stems: procumbent or ascending, up to 20 mm. long and 12 mm. thick in cultivation, but the majority smaller and egg-shaped or globose, very obscurely 4-angled, with 2 to 4 minute teeth along each angle, glabrous, light green with tips faintly purplish;

Flowers: single or in pairs at the apex of the stems;

Pedicel: 3 to 5 mm. long, glabrous, purplish-green;

Sepals: 2 mm. long, lanceolate, acute, glabrous, recurved at the apex;

Corolla: rotate, without a tube, 13 mm. in diameter; *lobes* very spreading, 7 mm. long and 4 mm. broad at the base, ovate-lanceolate, acute, slightly revolute along the margins and recurved at the apex, glabrous on the back, velvety-puberulous all over the inner face, not ciliate, light greenish-yellow, dotted with tiny light red or lavender spots, fewer near the apex, giving the lobes a pinkish tinge;

Corona: lobes about 1 mm. long, rising slightly above the backs of the anthers and incumbent over them, lanceolate or ovate, varying even in the same flower from entire and acute to irregularly toothed at the apex, with a short transversely rectangular dorsal crest, which is truncate or irregularly toothed along its edge; lobes yellow without markings, crest yellow with light red or lavender spots as on corolla-lobes.

Type locality: Unknown.

Distribution: Unknown.

This funny little "globose *Piaranthus*" is No. 53-1 in the White and Sloane Collection. It flowered with us first on Sept. 16, 1931, and since then has been a source of considerable mystification. It most nearly approaches to *P. parvulus*, the flowers be-

ing only a trifle larger and the color of the corolla-lobes a related tone of yellow, but shaded towards pink after a fashion of their own by reason of the dense sprinkling of tiny reddish-lavender spots. The stems suggest small irregularly rounded potatoes,

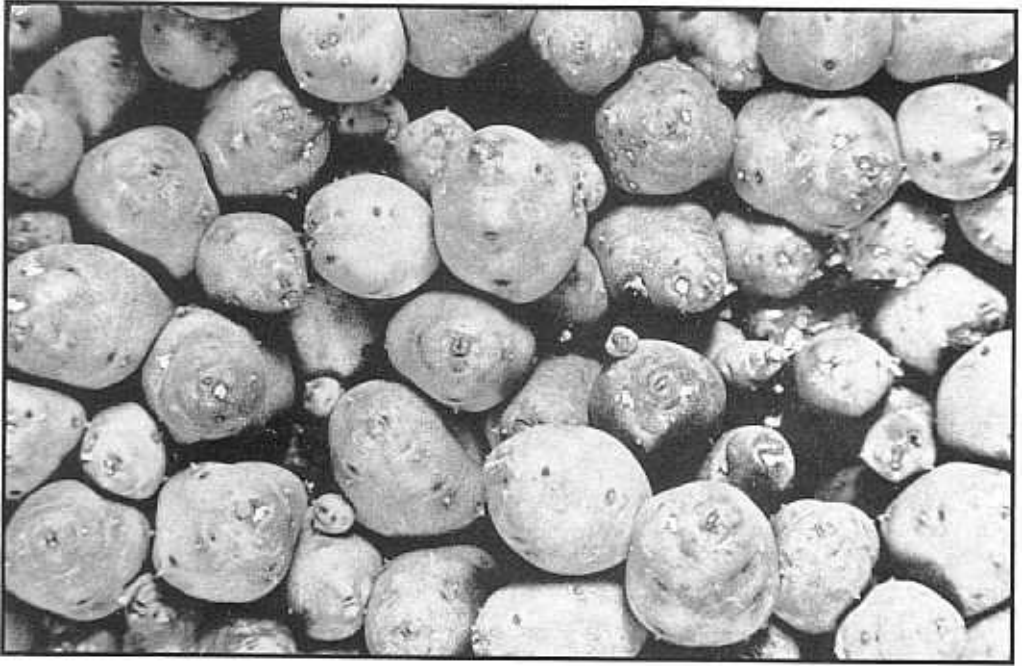


FIG. 824

Piaranthus globosus, sp. nov.

A mosaic of the small potato-like stems.

as in *Duvalia parviflora*, the minute teeth serving as eyes. Here again the nearest resemblance is towards *P. parvulus*. But the corona is wholly distinct from that species, the lobes incumbent upon the anthers in the conventional *foetidus-comptus* form,

and not at all erect or recurved-hooked. The coronal difference is too great for us to unite our plant to *P. parvulus* as a variety, and the general resemblances to any other species (the nearest might be *P. disparilis*) are too remote to permit any claims of close relationship. So we introduce our little foundling, of whose ancestry we know nothing, as a waif into the *Piaranthus* genus, where already sufficient confusion and uncertainty exist.

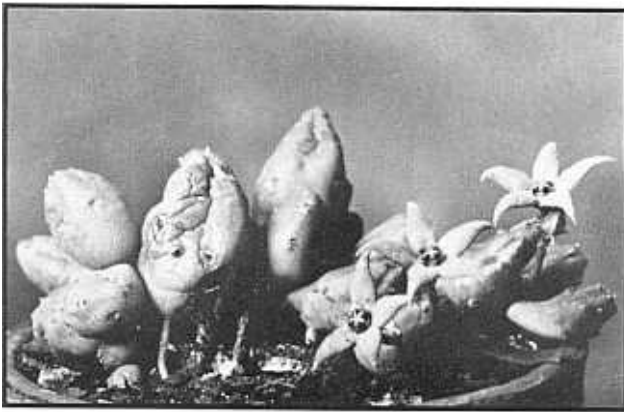


FIG. 825

Piaranthus globosus, sp. nov. x 1.

From W. I. Beecroft Gardens.

Photo by Havens.

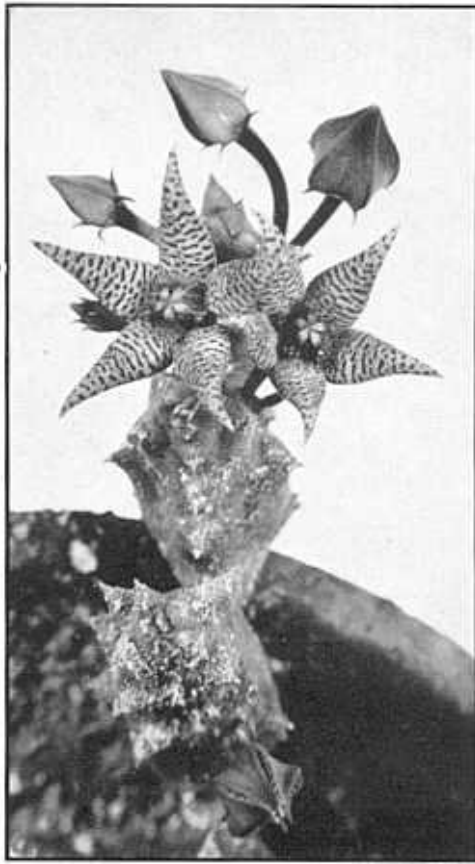


FIG. 826

Piaranthus foetidus N. E. Brown x 2.

Form with a slight ciliation at the base of the corolla-lobes.

15. *Piaranthus foetidus* N. E. Brown, *Flora Cap.*, iv. i. 1021. 1909.

(Description by Dr. Brown, l.c.):

Stems: tufted, $\frac{1}{3}$ to $1\frac{1}{2}$ (or under cultivation up to $2\frac{1}{2}$) in. long, $\frac{1}{3}$ to $\frac{2}{3}$ in. thick, oblong, ovoid or globose, obtusely and sometimes indistinctly 4 to 5-angled, tuberculate-toothed with the tubercles tipped with a small acute apiculus having a minute tooth on each side at the base, glabrous, green to grey-green, clouded or mottled with dull purple where exposed to the sun;

Flowers: 1 to 6 (but often 2) together near the top or at the middle of the stems, sometimes opening in pairs;

*Pedice*l: $\frac{1}{4}$ to $\frac{3}{4}$ in. long, erect, glabrous;

Sepals: $1\frac{1}{2}$ to 2 lin. long, lanceolate or ovate-lanceolate, acuminate, with recurved tips, glabrous;

Corolla: ovoid to subglobose in bud, 7 to 11 lin. in diameter when fully expanded, rotate, without a distinct tube, glabrous and green or tinted with purplish on the back, evenly pubescent and neatly marked all over the inner face with short transverse purplish-crimson lines or lines and spots on a yellow ground, or sometimes the tips of the lobes are almost entirely purplish-crimson; lobes $3\frac{1}{2}$ to $4\frac{1}{2}$ lin. long, $1\frac{3}{4}$ to $2\frac{2}{3}$ lin. broad, ovate or ovate-lanceolate, acute, convex above, concave beneath, from the recurving margins, usually without, but sometimes with a sparse ciliation of clavate vibratile hairs;

Corona: lobes 1 to 1¼ lin. long, closely incumbent upon the backs of the anthers, and equaling or shortly exceeding them, linear-lanceolate to oblanceolate, acute, entire or minutely denticulate at the apex, with raised lines and minute tubercles on the back, dorsally dilated at the base into a subquadrate crest, truncate and denticulate-tuberculate on the top, deep orange-yellow, with the margins, the raised lines on the back and the tubercles of the crest all dark purple-brown.

Type locality: Cape Prov.: without locality.

Distribution: Cape Prov.: Bedford Distr.: 9 miles E. S. E. of Bedford; Graaff Reinet Distr.: near Graaff Reinet; Van Rhynsdorp Distr.; Cradock Distr., "plentiful;" Griqualand West: Griquatown.

First sent to the Royal Botanic Gardens, Kew, prior to 1878, by Dr. Harry Bolus, but no formal description was published until the appearance of the *Flora Capensis* in 1909. The species enjoys much notoriety, because its astonishing odor is so well advertised by its name. Dr. Brown called the odor, "very strong, carrion-like, penetrating and perceptible at a short distance from the plant." Dr. Phillips says it is "sweet

and fetid." The plant is locally distributed from Griqualand West to the Great Karroo. The flowers are akin to those of *Piaranthus geminatus*, from which they may be differentiated by their smaller size and the raised ridges and minute tubercles on the backs of the corona-lobes. The coloring is very variable and Dr. Brown recognized 4 varieties, besides which minor variations are not infrequent.



FIG. 827

Piaranthus foetidus var. *multipunctatus*
N. E. Brown x 2.
From R. W. Poindexter Garden.

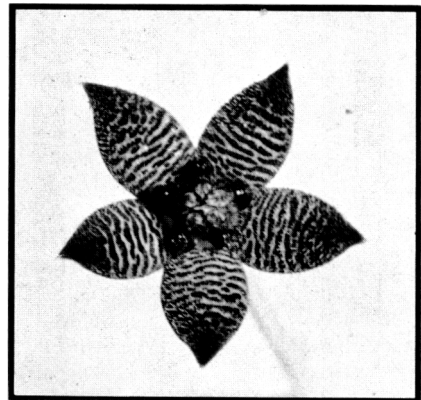


FIG. 828

Piaranthus foetidus var. *dit.*
N. E. Brown x 2.

Var. a. *Piaranthus foetidus* var. *multipunctatus* N. E. Brown *Flora Cap.*, iv 1022 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes marked all over with small rounded dark purplish-crimson dot
Otherwise as in the type.

Type locality: Cape Prov.: Bedford Distr.: 9 miles E. S. E. of Bedford, growing with the type.

Distribution: Also from Graaff Reinet Distr.: "Wheatlands."

Var. b. *Piaranthus foetidus* var. *pallidus* N. E. Brown, Flora Cap., iv. i. 1022. 190

(Description by Dr. Brown, l.c.):

Corolla: lobes pale purple with creamy-white transverse lines and spots on the basal two-thirds; Otherwise as in the type.

Type locality: Cape Prov.: Graaff Reinet Distr.: east of Graaff Reinet.

Distribution: Not further known.

Var. c. *Piaranthus foetidus* var. *purpureus* N. E. Brown, Flora Cap. iv. i. 1022 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes bright deep purplish-crimson, with faint dull yellow transverse markings on the basal half;

Otherwise as in the type.

Type locality: Cape Prov.: Graaff Reinet Distr.: east of Graaff Reinet.

Distribution: Not further known.

Var. d. *Piaranthus foetidus* var. *diversus* N. E. Brown, Flora Cap., iv. i. 1022. 1909.

(Description by Dr. Brown, l.c.):

Corolla: lobes dark purplish-crimson, with creamy-yellow transverse lines and spots on the basal two-thirds; pubescence on the lower two-thirds of the lobes consisting of short greyish hairs and on the apical part of much longer dark purple simple and slightly clavate hairs mixed;

Otherwise as in the type.

Type locality: Cape Prov.: Graaff Reinet Distr.: east of Graaff Reinet.

Distribution: Not further known.



INDEX

- Apocynum cauliculis* Plukenet, 78, 590.
erectum Witsen, 1115.
fritillarium Petiver, 691.
humile Hermann, 77, 691.
Apteranthes Mik., 151, 153, 229.
cylindrica Decne., 979.
gussoneana Boiss., 229.
gussoneana Mik., 222, 229.
tessellata Decne., 978.
Asclepias africana Boerhaave, 79.
africana Commelin, 595.
africana Tournefort, 590.
aizoides Morison, 590, 691.
Boucerosia Wight et Arn., 16, 151, 155, 1120, 1121.
aaronis Hart, 217.
acutangula Decne., 242.
adenensis Deffl., 215.
aucheri Decne., 192.
aucheriana Decne., 206.
aucheriana Hook. fil., 192.
awdeliana Deffl., 208.
campanulata Wight, 202.
cicatricosa Deffl., 248.
crenulata Wight et Arn., 194.
cylindrica Brongn., 981.
decaisneana Lem., 264.
diffusa Wight, 199.
edulis Edgw., 165.
europaea Hook. fil., 222.
forskalii Decne., 248, 252.
gussoniana Hook. fil., 222.
hispanica Coincy, 232.
hutchinia Decne., 197.
incarnata N. E. Br., 297.
lasiantha Wight, 202.
mammillaris N. E. Br., 280.
maroccana Hook. fil., 225.
munbyana Decne., 231.
munbyana var. *hispanica* Coincy, 232.
munbyana var. *hispanica* Jim. et Iban., 229.
pauciflora Wight, 246.
penicillata Deffl., 210.
quadrangula Decne., 252.
russeliana Courb., 236.
simonis Hort., 224.
Boucerosia — *Continued*
sinaica Decne., 178.
socotrana Balf. fil., 214.
stocksiana Boiss., 165.
tombuctuensis Chev., 240.
truncato-coronata Sedgwick, 196.
umbellata Wight et Arn., 202.
Cactoidea Wh. et. Sl., 991, 992, 1014, 1033.
Calostelma Brgr., 821, 889.
Caralluma R. Br., 8, 10, 94, 116, 120, 147, 151-164, 278, 404, 410, 411, 785, 793, 976, 986, 991, 1091, 1095, 1096, 1119, 1120, 1122, 1123.
aaronis N. E. Br., 18, 19, 119, 159, 217-218, 273.
acutangula N. E. Br., 242.
acutiloba N. E. Br., 57, 143, 162, 315-316.
adenensis Brgr., 18, 108, 159, 215-216.
adscendens R. Br., 16, 88, 151, 158, 166, 168-175, 180, 185, 186.
adscendens var. *attenuata* Gr. et M., 16, 17, 98, 152, 166, 167, 168, 170, 172, 173, 174, 175, 198, 332.
adscendens var. *carinata* Gr. et M., 166, 168, 171, 172, 173, 174.
adscendens var. *fimbriata* Gr. et M., 95, 168, 169, 172, 173, 174, 175.
adscendens var. *genuiculata* Gr. et M., 166, 168, 171, 172, 173, 174, 175.
adscendens var. *gracilis* Gr. et M., 166, 167, 168, 170, 172, 173, 174, 175, 194.
affinis de Wild., 227.
anemoniflora Brgr., 8, 18, 119, 160, 250, 404.
ango N. E. Br., 24, 99, 161, 259, 262, 273.
aperta N. E. Br., Front. Vol. I, 57, 85, 155, 163, 319, 342-343, 411, 418, 650.
arabica N. E. Br., 18, 159, 209, 213.
arenicola N. E. Br., 61, 67, 129, 163, 344-345.
arida N. E. Br., 67, 68, 85, 163, 321-322, 330.
armata N. E. Br., 28, 57, 109, 161, 277, 278, 279, 296, 976, 982, 993, 1024.
atrosanguinea N. E. Br., 966, 973.
attenuata Wight, 170.
aucheriana N. E. Br., 18, 97, 159, 193, 206.

Caralluma — Continued

- ausana* Dtr. et Brgr., 311, 314.
australis Nel, Addenda A.
awdeliana Brgr., 18, 119, 159, 208-209.
baldratii Wh. et Sl., 9, 24, 161, 262, 268-269, 1135.
brownii Dtr. et Brgr., 374.
burchardii N. E. Br., 8, 22, 159, 219-221.
burchardii var. *maura* Maire, 22, 220-221.
campanulata N. E. Br., 202.
carnosa Schweickerdt, 294.
carnosa Stent, 45, 48, 134, 162, 287, 288-289, 291, 293, 295, 821.
caudata N. E. Br., 10, 26, 164, 348-353.
caudata var. *chibensis* Luckhoff, 34, 349, 350, 351, 352-353.
caudata var. *fusca* Luckhoff, 350, 352, 1144.
caudata var. *milleri* Nel, Addenda C.
caudata var. *stevensonii* Obermeijer, Addenda B.
chibensis Luckhoff, 352.
chlorantha Schlechter, 67, 122, 161, 275.
chrysostephana Brgr., 18, 119, 160, 254-255.
cicatricosa N. E. Br., 18, 160, 248-249.
cincta Luckhoff, 58, 143, 162, 302, 306-307.
codonoides K. Schum., 26, 244, 245, Addenda O.
commutata Brgr., 19, 108, 160, 161, 262, 266, 271, 273.
commutata ssp. *eu-commutata* Maire, 273.
commutata ssp. *hesperidum* Maire, 270.
compta Schlechter, 800.
confusa Font Quer, 229.
corrugata N. E. Br., 24, 130, 160, 242, 259, 261.
crassa N. E. Br., 401, 402.
crenulata Wallich, 16, 95, 159, 194-195, 196, 197.
dalzielii N. E. Br., 9, 22, 73, 127, 158, 184-186.
decaisneana N. E. Br., 22, 96, 127, 161, 181, 264-265.
decora Schlechter, 810.
dependens N. E. Br., 57, 58, 69, 109, 163, 302, 304, 305, 331-332, 991.
dicapuae Chiov., 24, 122, 158, 187-188, 242, 259.
diffusa N. E. Br., 16, 98, 159, 199, 200.
edithae N. E. Br., 24, 123, 159, 211, 233, 234.
edulis Benth. et Hook. fil., 16, 103, 158, 165, 172.
edulis Chev., 181, 182.
europaea N. E. Br., 21, 22, 97, 159, 207, 218, 219, 222-230.
europaea var. *affinis* Brgr., 227-228.
europaea var. *confusa* Font Quer, 22, 223, 229-230.

Caralluma — Continued

- europaea* var. *marmaricensis* Brgr., 21, 224.
europaea var. *maroccana* Brgr., 21, 225-226, 227.
europaea var. *simonis* Brgr., 21, 224-225, 226, 228.
fimbriata Hook. fil., 170.
fimbriata Wallich, 169.
flava N. E. Br., 18, 123, 159, 207.
fosteri Pillans, 46, 162, 292-293.
framesii Pillans, 58, 138, 161, 276.
geminata Schlechter, 808.
gerstneri Letty, Addenda Q.
gossweileri S. Moore, 27, 127, 163, 346.
gracilipes K. Schum., 25, 26, 112, 158, 189, 191.
grandidens Verdoorn, 337.
grivana Schlechter, 793.
hahnii Nel, Addenda F.
hesperidum Maire, 8, 22, 139, 153, 161, 266, 268, 270-272.
hirtiflora N. E. Br., 240.
hottentotorum N. E. Br., 57, 73, 109, 154, 156, 162, 309-314, 320, 1127.
hottentotorum var. *major* N. E. Br., 28, 57, 310, 311, 312, 313, 314.
hottentotorum var. *minor* Luckhoff, 310, 312, 313, 314, 1144.
hottentotorum var. *tubata* Luckhoff, 310, 312, 314, 1144.
huillensis Hiern, 27, 102, 155, 163, 258, 347.
incarnata N. E. Br., 57, 58, 69, 71, 78, 82, 85, 276, 297-298, 1112, 1115, 1116, 1117, 1118, 1126, 1127, 1131.
incarnata var. *alba* N. E. Br., 57, 58, 69, 71, 162, 297, 298, 1127.
indica N. E. Br., 16, 98, 159, 194, 197-198, 247, 455, 1120, 1121.
intermedia Schlechter, 70, 109, 156, 163, 333-334, 411, 474, 1123.
inversa N. E. Br., 70, 143, 162, 302, 305.
kalaharica Nel, 140, Addenda G.
keithii R. A. Dyer, 49, 135, 162, 290-291, 295, 821.
knobelii Phillips, 32, 135, 164, 366-369, 381.
knobelii var. *langii* Wh. et Sl., 367-369.
langii Wh. et Sl., 368.
lasiantha N. E. Br., 202.
lateritia N. E. Br., 28, 32, 33, 124, 164, 370-373, 375.
lateritia var. *stevensonii* Wh. et Sl., 34, 155, 371-372, 1144.
leendertziae N. E. Br., 354.
linearis N. E. Br., 61, 110, 162, 308.
longicornuta Croizat, 35.
longicuspis N. E. Br., 28, 52, 55, 129, 164, 388-389.
longidens N. E. Br., 9, 21, 108, 158, 180.

Caralluma — *Continued*

- longipes N. E. Br., 59, 118, 155, 161, 282.
 lugardi N. E. Br., 28, 32, 34, 55, 124, 164,
 383-387, 389.
 luntii N. E. Br., 2, 18, 123, 155, 160, 254,
 256-257.
 lutea N. E. Br., 13, 32, 35, 43, 45, 46, 47, 48,
 49, 50, 51, 52, 53, 55, 102, 164, 346, 360-
 363, 365, 366, 370, 373, 375, 381, 382,
 1123, 1132.
 lutea var. lateritia Nel, 373.
 maculata N. E. Br., 32, 34, 43, 124, 156, 163,
 253, 337-339, 340, 341, 349, 366.
 mammillaris N. E. Br., 57, 58, 61, 67, 69,
 70, 71, 78, 82, 85, 153, 155, 161, 278, 279,
 280-281, 784, 1112, 1114, 1118.
 marlothii N. E. Br., 59, 61, 69, 118, 154, 163,
 287, 328-329, 1134.
 maroccana Brgr., 227.
 maroccana N. E. Br., 225.
 maroccana var. confusa Senn. et Maur., 225.
 maughani R. A. Dyer, 59, 143, 161, 283-
 284, 986.
 melanantha N. E. Br., 34, 44, 45, 46, 122,
 164, 333, 354-359, 375, 474.
 melanantha f. rubiginosa Werdermann, 359.
 melanantha var. sousae Gomes e Sousa, 35,
 355, 356-358.
 mogadoxensis Chiov., 24, 139, 158, 183.
 mouretii Chev., 22, 158, 181-182.
 munbyana N. E. Br., 22, 99, 159, 231-232.
 munbyana var. hispanica Maire, 22, 23, 223,
 231, 232.
 namaquana Welw., 277.
 nebrownii Brgr., 28, 51, 118, 164, 346, 370,
 374-380.
 nebrownii f. intermedia Wh. et Sl., 376,
 378, 379, 1144.
 nebrownii var. discolor Nel, 380, 1144.
 nebrownii var. pseudo-nebrownii Wh. et Sl.,
 28, 51, 55, 156, 375, 377-379.
 oxydonta Chiov., 24, 138, 159, 233.
 parviflora N. E. Br., 57, 85, 162, 303-304.
 parviflora Schlechter, 331.
 pauciflora N. E. Br., 16, 98, 160, 194, 197,
 198, 246-247, 1120.
 penicillata N. E. Br., 19, 108, 156, 159, 210-
 212, 234, 253, 265.
 penicillata var. robusta Wh. et Sl., 19, 21,
 24, 159, 210-212.
 peschii Nel, 28, 145, 163, 326-327.
 piaranthoides Obermeijer, 34, 143, 162, 285-
 287.
 pillansii N. E. Br., 62, 71, 129, 162, 296,
 1132.
 praegracilis Obermeijer, Addenda D.
 priogonium K. Schum., 26, 158, 190-191.

Caralluma — *Continued*

- procumbens Gr. et M., 16, 138, 155, 159,
 200-201, 1120.
 pruinosa N. E. Br., 57, 85, 163, 323-325.
 pruinosa var. nigra Luckhoff, 57, 324, 325,
 1144.
 pseudo-nebrownii Dtr., 377.
 pulla (Ait.), 85.
 punctata Schlechter, 787.
 quadrangula N. E. Br., 18, 156, 160, 212,
 249, 252-253, 265, 976.
 quadrangula Di Cap., 187.
 ramosa N. E. Br., 61, 67, 68, 71, 85, 162,
 299-300, 952, 1132, 1138.
 rangeana Dtr. et Brgr., 28, 126, 163, 253,
 340-341.
 rangei Dtr. et Brgr., 340.
 respiciens K. Schum., 236.
 retrospectiens N. E. Br., 9, 20, 21, 24, 25, 95,
 157, 159, 207, 211, 216, 233, 236-242.
 retrospectiens ssp. tombuctuensis Chev., 240.
 retrospectiens ssp. tombuctuensis var. acutan-
 gula Chev., 242.
 retrospectiens var. acutangula Wh. et Sl., 96,
 242, 259.
 retrospectiens var. glabra N. E. Br., 25, 152,
 238-239.
 retrospectiens var. hirtiflora Brgr., 21, 24,
 239, 240.
 retrospectiens var. tombuctuensis Wh. et Sl.,
 21, 22, 127, 155, 237, 239, 240-241, 242,
 259.
 riviae Chiov., 24, 25, 122, 155, 160, 242,
 259, 260-261.
 robusta N. E. Br., 211.
 rogersii E. A. Bruce et R. A. Dyer, 32, 34,
 45, 134, 156, 164, 390-392, 410.
 rosgrenii Vierh., 17, 127, 160, 251.
 rubiginosa Werdermann, 354, 359.
 sacculata N. E. Br., 24, 130, 161, 267.
 schweickerdtii Obermeijer, 43, 135, 162,
 288, 294-295.
 schweinfurthii Brgr., 9, 26, 108, 121, 161,
 274.
 scutellata Defl., 982.
 serpentina Nel, 987.
 serrulata Schlechter, 810.
 simonis Hort., 224.
 simulans N. E. Br., 62, 118, 163, 330.
 sinaica Benth. et Hook. fil., 19, 97, 155, 158,
 178, 977.
 socotrana N. E. Br., 17, 117, 159, 214.
 somalica N. E. Br., 24, 107, 159, 235.
 speciosa N. E. Br., 24, 107, 159, 233, 243-
 244, 245, 261, 403.
 sprengeri N. E. Br., 19, 21, 24, 99, 161, 262,
 263, 266, 267, 272, 273, 274.

Caralluma — Continued

- stalagmifera C. E. C. Fischer, 16, 17, 138, 158, 166-167, 171, 172, 173, 174, 175, 194.
 subulata Decne., 18, 158, 176-177, 178.
 subulata K. Schum., 260.
 tessellata Pillans, 985.
 tombuctuensis N. E. Br., 240.
 torta N. E. Br., 71, 123, 155, 160, 258, 347.
 truncato-coronata Gr. et M., 16, 159, 195, 196.
 tsumebensis Obermeijer, Addenda E.
 tuberculata N. E. Br., 16, 159, 192-193, 194, 200, 206, 213.
 ubomboensis Verdoorn, 49, 134, 163, 335-336.
 umbellata Haw., 15, 16, 89, 91, 98, 159, 199, 200, 202-205, 1120, 1121.
 umbellata f. campanulata Gr. et M., 203, 204, 205.
 umbellata f. lasiantha Gr. et M., 203, 204, 205.
 umdausensis Nel, 57, 162, 317-319.
 vaga Wh. et Sl., 28, 118, 164, 381.
 valida N. E. Br., 71, 112, 164, 377, 382.
 vansonii Bremekamp et Obermeijer, 32, 131, 141, 155, 164, 364-365.
 venenosa Maire, 22, 139, 161, 266.
 villetii Luckhoff, 58, 143, 162, 301-302.
 vittata N. E. Br., 9, 21, 158, 179, 186, 188.
 wilfriedi Dtr., 28, 126, 162, 320.
 winkleri Wh. et Sl., 28, 126, 161, 277-278.
Caruncularia Haw., 94, 409, 410, 418, 421, 427, 645, 650, 1119.
 aperta Sweet, 342.
 jacquini Sweet, 651.
 massoni Sweet, 651.
 pedunculata Haw., 651.
 penduliflora Sweet, 651.
 serrata Decne., 810.
 serrulata G. Don., 810.
 simsii Sweet, 651.
Crassa Rupp., 78, 409.
 minor Rupp., 78, 590.
 rivini Rupp., 78, 691.
Clavirostres Wh. et Sl., 417, 421, 427.
Decabelone Decne., 1099, 1100.
 angolensis N. E. Br., 1106.
 barklyi Dyer, 1103.
 elegans Decne., 1101.
 grandiflora K. Schum., 1106.
 sieberi Pfersd., 1101.
Decodontia Haw., 819.
Desmidorchis Ehr., 151, 153, 236, 252.
 acutangula Decne., 242.
 crenulata Decne., 194.
 forskalii Decne., 248, 249, 252.
 pauciflora Decne., 246.

Desmidorchis — Continued

- quadrangula Decne., 252.
 retrospectiens Ehr., 236.
 umbellata Decne., 202.
Diplocyatha N. E. Br., 10, 116, 147, 410, 722, 1122, 1123.
 ciliata N. E. Br., 59, 62, 67, 69, 82, 85, 722, 723-726.
Diplocyathus K. Schum., 722.
Drakebrockmania Wh. et Sl., 9, 147, 154, 155, 401.
 crassa Wh. et Sl., 24, 130, 401, 402-403.
Duvalia Haw., 8, 10, 60, 94, 148, 154, 155, 410, 741-743, 849, 968, 1119, 1122, 1123, 1131.
 angustiloba N. E. Br., 71, 109, 742, 743, 765.
 caespitosa Haw., 60, 66, 85, 93, 743, 769.
 compacta Haw., 57, 61, 93, 743, 770-771.
 concolor Schlechter, 775.
 corderoyi N. E. Br., 54, 55, 59, 66, 99, 742, 743, 748, 749-752, 755, 763.
 dentata N. E. Br., 753.
 elegans Haw., 66, 67, 71, 85, 93, 741, 742, 743, 744-745, 746.
 elegans f. magnicorona Wh. et Sl., 741, 742, 745, 1144.
 elegans var. namaquana N. E. Br., 57, 745, 1127.
 elegans var. seminuda N. E. Br., 68, 743, 745.
 emiliana White, 71, 743, 763-764.
 glomerata Haw., 781.
 hirtella Sweet, 773, 776, 778, 779.
 hirtella var. minor N. E. Br., 781.
 hirtella var. obscura N. E. Br., 777, 778.
 jacquiniana Sweet, 744.
 laevigata Haw., 782.
 maculata N. E. Br., 28, 55, 61, 62, 129, 742, 743, 766-768.
 maculata var. immaculata Luckhoff, 766, 768, 1144.
 mastodes Sweet, 770, 771.
 minuta Nel, Addenda I.
 modesta N. E. Br., 59, 61, 64, 65, 129, 742, 743, 757-759.
 parviflora N. E. Br., 62, 67, 129, 743, 761-762, 815.
 pillansii N. E. Br., 61, 67, 129, 743, 759, 760.
 pillansii var. albanica N. E. Br., 64, 66, 760.
 polita N. E. Br., 7, 10, 28, 32, 33, 34, 35, 39, 43, 45, 46, 48, 49, 50, 51, 110, 111, 366, 743, 753-756, 1108.
 polita f. intermedia Wh. et Sl., 755, 756, 1144.
 polita var. transvaalensis Wh. et Sl., 32, 43, 45, 49, 743, 754-756.
 propinqua Brgr., 772.
 pubescens N. E. Br., 28, 52, 57, 743, 746-747.

INDEX

Duvalia — Continued

- pubescens* var. *major* N. E. Br., 57, 743, 747.
radiata Haw., 50, 58, 67, 93, 743, 771, 773, 774, 776-782.
radiata var. *hirtella* Wh. et Sl., 50, 59, 62, 65, 66, 67, 71, 93, 743, 769, 774, 779-780, 781, 782.
radiata var. *minor* Wh. et Sl., 71, 773, 781.
radiata var. *obscura* Wh. et Sl., 61, 65, 67, 71, 774, 778-779.
reclinata Haw., 59, 61, 64, 65, 66, 67, 85, 93, 743, 772-775, 779.
reclinata var. *angulata* N. E. Br., 774, 775.
reclinata var. *bifida* N. E. Br., 59, 65, 774.
replicata Sweet, 776.
sulcata N. E. Br., 18, 123, 743, 748, 754, 755, 759.
transvaalensis Schlechter, 754.
transvaalensis var. *parviflora* L. Bolus, 754.
tuberculata Haw., 780, 782.
Echidnopsis Hook. fil., 8, 111, 147, 154, 253, 975-976, 986, 990, 1095.
atlantica Dtr., 28, 975, 990.
bentii N. E. Br., 123, 976, 981, 983.
cereiformis Hook. fil., 17, 19, 24, 25, 111, 975, 976, 978-979, 981, 986.
cereiformis var. *brunnea* Brgr., 979.
cereiformis var. *obscura* Brgr., 979.
cylindrica K. Schum., 979.
dammanniana Schweinf., 977.
dammanniana Sprenger, 24, 121, 976, 981, 984.
dammanniana var. *brunnea* Dammann, 979.
framesii Wh. et Sl., 58, 138, 976, 985-986, 987, 989, 990, 1144.
golathi Schweinf., 210.
nubica N. E. Br., 9, 19, 20, 24, 108, 178, 976, 977, 978, 981.
quadrangula Defl., 252.
scutellata Brgr., 19, 119, 976, 982.
serpentina Wh. et Sl., 987-989.
somalensis N. E. Br., 24, 123, 976, 980.
tessellata K. Schum., 978, 986.
virchowii K. Schum., 26, 112, 976, 981, 984.
Edithcolea N. E. Br., 8, 116, 147, 154, 155, 250, 404.
grandis N. E. Br., 24, 25, 123, 404, 405-406, 407.
sordida N. E. Br., 17, 407.
Eucaralluma K. Schum., 16, 155, 1120.
Euphorbium erectum Burman, 297, 1115, 1116.
Eutrichocaulon Wh. et Sl., 991, 992, 1014, 1033.
Fissirostres N. E. Br., 414, 421, 423, 483.
Fissirostrum Brgr., 414.
Frerea Dalz., 8, 104, 147, 149, 152, 154, 1123.
indica Dalz., 16, 104, 149, 150.
Fritillaria crassa van Stapel, 74, 75, 77, 691, 1111.
Gonostemon Haw., 94, 96, 409, 410, 415, 421, 424, 488, 508, 1122.
divaricata Haw., 507.
divaricatum Sweet, 507.
divaricatus Loud., 507.
gordoni Sweet, 1076.
pallida G. Don, 507.
pallidum Sweet, 507.
pallidus Loud., 507.
stricta Haw., 509.
strictum Sweet, 509.
strictus Loud., 509.
Heurnia K. Schum., 819.
Heurniopsis K. Schum., 965.
Hoodia Sweet, 2, 10, 31, 96, 113, 145, 147, 410, 990, 1050-1054, 1089, 1090, 1091, 1096, 1123, 1131, 1132.
albispina N. E. Br., 60, 143, 1054, 1080.
bainii Dyer, 29, 53, 54, 55, 60, 62, 70, 96, 110, 111, 113, 114, 1053, 1054, 1083, 1084-1085.
barklyi Dyer, 109, 1052, 1054, 1085, 1086.
burkei N. E. Br., 62, 99, 801, 1054, 1083.
currori Decne., Front. Vol. III, 27, 29, 1054, 1057, 1058-1059, 1062, 1063, 1077, 1089.
dinteri Schlechter, 29, 1085.
dregei N. E. Br., 62, 96, 1053, 1054, 1064-1065, 1074.
gibbosa Nel, 145, 1060-1062.
gordoni Sweet, 1, 29, 30, 42, 52, 53, 55, 57, 85, 86, 1051, 1052, 1054, 1059, 1071, 1076-1078, 1079, 1085, 1135.
husabensis Nel, 145, 1054, 1066, 1069-1070.
juttae Dtr., 12, 29, 126, 1054, 1081, 1082.
langii Obermeijer et Letty, 51, 141, 1054, 1066, 1067-1068, 1071.
lugardi N. E. Br., 29, 32, 124, 1052, 1054, 1066, 1068, 1069, 1071, 1073.
lugardi Phillips, 1067.
macrantha Dtr., 29, 126, 1052, 1054, 1055-1057.
montana Nel, 140, 1062, 1063.
parviflora N. E. Br., 27, 102, 1054, 1075.
pillansii N. E. Br., 62, 129, 1054, 1081, 1087.
rosea Obermeijer et Letty, 51, 141, 1054, 1066, 1068, 1071-1073.
ruschii Dtr., 29, 144, 1054, 1074.
senilis Jacobsen, 1106.
similis Dtr., 29, 126, 1079.
triebneri Hans Schuldt, 29, 145, 1081, 1087-1088.
whitesloaneana Dtr., 29, 144, 1071, 1073.
Hoodiopsis Luckhoff, 10, 147, 154, 1091, 1095.
triebneri Luckhoff, 29, 145, 1087, 1091, 1092-1094.
triebneri var. *ciliata* Luckhoff, 1094, 1144.

- Huernia* R. Br., 8, 10, 94, 120, 147, 154, 295, 410, 742, 819-827, 960, 961, 1111, 1119, 1123, 1131.
albomaculata Wh. et Sl., 71, 824, 876.
appendiculata Brgr., 898.
arabica N. E. Br., 859.
aspera N. E. Br., 107, 824, 828-829, 832, 837, 838, 947.
barbata Haw., 50, 54, 55, 61, 64, 65, 66, 67, 85, 93, 827, 945, 950, 951-955.
barbata var. *crispa* Loud., 951.
barbata var. *griquensis* N. E. Br., 53, 953-954.
barbata var. *tubata* N. E. Br., 93, 954-955.
barbata Schlechter, 923.
bicampanulata Verdoorn, 32, 43, 46, 141, 827, 941.
blackbeardae R. A. Dyer, 931.
blackberdae R. A. Dyer, 931.
brevirostris N. E. Br., 60, 61, 71, 106, 822, 824, 825, 862-875, 878, 886, 891, 913.
brevirostris var. *ecornuta* Wh. et Sl., 60, 61, 864, 865, 875, 886.
brevirostris var. *histrionica* Wh. et Sl., 865, 866, 1144.
brevirostris var. *immaculata* Wh. et Sl., 60, 65, 825, 843, 863, 865, 868, 869, 870-871, 891.
brevirostris var. *intermedia* N. E. Br., 61, 864, 865, 867, 868, 869.
brevirostris var. *longula* Wh. et Sl., 45, 61, 62, 864, 865, 874.
brevirostris var. *pallida* Wh. et Sl., 60, 865, 866, 875.
brevirostris var. *parvipuncta* Wh. et Sl., 863, 865, 867, 869, 1144.
brevirostris var. *scabra* Wh. et Sl., 60, 65, 826, 864, 865, 872-873, 874, 887.
campanulata R. Br., 62, 67, 85, 93, 819, 822, 827, 946-947, 949.
campanulata var. *denticoronata* N. E. Br., 62, 947.
clavigera Haw., 55, 57, 61, 71, 92, 93, 827, 948-950, 956.
clavigera var. *maritima* N. E. Br., 67, 128, 950.
concinna N. E. Br., 24, 108, 824, 852, 853, 860-861, 876.
confusa Phillips, 43, 46, 122, 826, 920-922, 930, 934.
crispa Haw., 951.
decemdentata N. E. Br., 71, 143, 827, 935.
distincta N. E. Br., 61, 129, 827, 956.
duodecimfida Sweet, 954.
flava N. E. Br., 843.
guttata R. Br., 58, 61, 70, 85, 93, 94, 821, 826, 911-913, 917, 925, 947.
herrei Wh. et Sl., 823; Addenda P.
Huernia — *Continued*
herrei var. *immaculata* Wh. et Sl., Addenda P.
hislopilii Turrill, 34, 144, 827, 849, 944-945.
humilis Haw., 60, 62, 85, 826, 918-919, 921, 922.
humilis Schlechter, 920.
hystrix N. E. Br., 35, 44, 45, 47, 49, 50, 60, 103, 820, 825, 892-898, 902, 903, 904, 908, 960, 961, 967, 1137.
hystrix var. *appendiculata* Wh. et Sl., 898.
inornata Obermeijer, Addenda N.
insigniflora C. A. Maass, 61, 826, 930, 934.
keniensis R. E. Fries, 9, 25, 137, 820, 824, 828, 829, 830-837.
keniensis var. *molonyae* Wh. et Sl., 25, 824, 832-833, 1144.
keniensis var. *nairobiensis* Wh. et Sl., 834-837.
kirkii N. E. Br., 33, 34, 47, 107, 827, 941, 942-943.
lentiginosa Haw., 911.
levyi Obermeijer, 33, 34, 143, 827, 936-938, 939, 1110, 1112.
loeseneriana Schlechter, 43, 45, 46, 122, 825, 889, 902, 905-906, 939.
longituba N. E. Br., 32, 51, 52, 53, 54, 129, 822, 827, 889, 905, 939-940.
macrocarpa Brgr., 855.
macrocarpa Sprenger, 20, 24, 99, 108, 822, 824, 844, 849, 851-859, 861, 876, 1135.
macrocarpa var. *arabica* Wh. et Sl., 19, 853, 859.
macrocarpa var. *cerasina* Wh. et Sl., 853, 855, 856, 857, 858, 1145.
macrocarpa var. *flavicornata* Wh. et Sl., 853, 854, 856, 857, 858, 1145.
macrocarpa var. *penzigii* Wh. et Sl., 24, 121, 824, 847, 853, 854, 855-857.
macrocarpa var. *schweinfurthii* Wh. et Sl., 24, 853, 854, 857, 858.
macrocarpa Taubert, 860.
namaquensis Pillans, 57, 129, 825, 887.
nouhuysii Verdoorn, 43, 135, 825, 888-889.
ocellata Schultes, 65, 92, 93, 826, 914-915.
oculata Hook. fil., 29, 117, 824, 846-847.
penzigii N. E. Br., 852, 855.
penzigii var. *arabica* Brgr., 859.
penzigii var. *schimperii* Brgr., 851.
penzigii var. *schweinfurthii* Brgr., 854.
piersii N. E. Br., 54, 143, 824, 883.
pillansii N. E. Br., 10, 61, 67, 129, 819, 822, 827, 956, 957-958, 1007.
praestans N. E. Br., 62, 67, 69, 129, 826, 910, 913, 1110.
primulina N. E. Br., 60, 63, 64, 65, 66, 100, 109, 820, 821, 824, 839-843, 869, 879, 880, 1119.

Huernia — *Continued*

- primulina* var. *rugosa* N. E. Br., 60, 63, 64, 843.
quinta Wh. et Sl., 45, 825, 884-886.
reticulata Haw., 42, 58, 70, 85, 93, 826, 923-924.
rogersii R. A. Dyer, 846, 847.
scabra N. E. Br., 863, 872, 886.
scabra var. *ecornuta* N. E. Br., 875.
scabra var. *immaculata* N. E. Br., 871.
scabra var. *longula* N. E. Br., 874.
scabra var. *pallida* N. E. Br., 866.
scabra var. *quinta* Phillips, 885.
schneideriana Brgr., 26, 35, 822, 824, 844-845, 847, 849.
similis N. E. Br., 27, 102, 824, 829, 838.
simplex N. E. Br., 60, 143, 821, 827, 959, 961, 967.
smithersii Wh. et Sl., 924, 1110.
somalica N. E. Br., 9, 24, 123, 826, 909, 913.
sprengeri Schweinf., 263.
stapelioides Schlechter, 122, 825, 899-904.
striata Obermeijer, Addenda J.
tavaresii Welw., 1101.
thureti Cels, 63, 64, 66, 821, 824, 842, 879-882.
transmutata Wh. et Sl., 71, 824, 877-878.
transvaalensis Stent, 43, 48, 50, 134, 755, 826, 902, 925-926.
tubata Haw., 954.
tubata var. *duodecimfida* G. Don, 954.
venusta R. Br., 71, 85, 826, 912, 916-917.
verekeri Stent, 34, 143, 824, 844, 848-850.
verekeri var. *stevensonii* Wh. et Sl., 34, 849, 850, 1145.
vogtsii Phillips, 43, 45, 46, 49, 135, 899-904, 908.
volkartii Gossw., 27, 127, 825, 907-908.
whitesloaneana Nel, Addenda K.
witzenbergensis Luckhoff, 71, 142, 825, 890-891.
zebrina N. E. Br., 29, 32, 43, 45, 49, 826, 926, 927-933.
zebrina var. *magniflora* Phillips, 45, 927, 928, 930, 931-933, 1112.
Huerniopsis N. E. Br., 9, 116, 148, 959, 965-969, 1122, 1123.
atrosanguinea Wh. et Sl., 32, 43, 48, 124, 966, 967, 968, 969, 973-974.
decipiens N. E. Br., 10, 29, 32, 39, 51, 52, 53, 55, 112, 965, 966, 967, 968, 970-971, 972, 1119.
gibbosa Nel, 967, Addenda L.
papillata Nel, 969, 972.
Hutchinia Wight et Arn., 151.
indica Wight et Arn., 197.
Lalacruma K. Schum., 156, 189, 1120.
Luckhoffia Wh. et Sl., 10, 147, 154, 410, 1095-1096.
beukmanii Wh. et Sl., 70, 143, 1095, 1096, 1097-1098.
Monothylaceum G. Don., 1050.
gordoni G. Don, 1076.
Obesia Haw., 94, 410, 783, 784.
arida Sweet, 321.
decora Haw., 810.
geminata Haw., 808.
punctata Haw., 787.
serrulata Sweet, 810.
Orbea Haw., 94, 104, 409, 410, 419, 420, 421, 428, 669, 670, 672, 725, 1119.
anguinea Haw., 712.
aperta Sweet, 342.
arida Sweet, 321.
bisulca Haw., 707.
bufonia Haw., 707.
clypeata Haw., 707.
conspurcata Schultes, 707.
curtisii Haw., 707.
decora Steud., 810.
inodora Haw., 707.
lepida Haw., 689.
maculosa Haw., 671.
marginata Schultes, 710.
marmorata Schultes, 711.
mixta Haw., 711.
mutabilis Sweet, 676.
normalis Schultes, 691.
picta Haw., 712.
planiflora Haw., 712.
planiflora var. *marginata* G. Don, 710.
quinquenervia Haw., 707.
quinquenervis Loud., 707.
retusa Haw., 713.
rugosa Sweet, 715.
trisulca Haw., 715.
variegata Haw., 691.
wendlandiana Schultes, 443.
woodfordiana Haw., 691.
Orthostelma K. Schum., 821, 889, 926, 967.
Pectinaria Haw., 2, 7, 10, 42, 94, 147, 155, 410, 727-728, 732.
arcuata N. E. Br., 60, 63, 129, 728, 729.
articulata Haw., 59, 82, 85, 727, 728, 732, 735-736.
articulata var. *namaquensis* N. E. Br., 57, 736.
asperiflora N. E. Br., 4, 5, 62, 129, 287, 727, 728, 737-740.
mammillaris Sweet, 280.
pillansii N. E. Br., 65, 129, 732-733, 734.
saxatilis N. E. Br., 61, 62, 67, 129, 727, 728, 730-731, 732, 733, 734.
tulipiflora Luckhoff, 58, 142, 728, 734.

- Piранthus* R. Br., 10, 94, 148, 410, 783-786, 968, 1119, 1122, 1131.
aridus G. Don, 321.
comptus N. E. Br., 53, 57, 62, 65, 99, 786, 800-802, 803, 809, 815.
comptus var. *ciliatus* N. E. Br., 62, 802.
cornutus N. E. Br., 57, 109, 786, 794, 798, 809.
cornutus var. *grandis* N. E. Br., 60, 794.
decorus N. E. Br., 67, 71, 85, 93, 138, 786, 794, 809, 810-811.
disparilis N. E. Br., 62, 67, 129, 785, 786, 795, 799, 803-804, 815.
disparilis var. *immaculatus* Luckhoff, 786, 799, 804, 1145.
fascicularis Hort., 978.
foetidus N. E. Br., 53, 58, 60, 61, 63, 64, 106, 783, 786, 811, 813, 815, 816-818.
foetidus var. *diversus* N. E. Br., 817, 818.
foetidus var. *multipunctatus* N. E. Br., 63, 817.
foetidus var. *pallidus* N. E. Br., 818.
foetidus var. *purpureus* N. E. Br., 819.
framesii Pillans, 58, 138, 786, 787, 791-792.
geminatus N. E. Br., 61, 85, 93, 95, 287, 786, 803, 804, 808-809, 811, 817.
globosus Wh. et Sl., 71, 786, 814-815.
grivanus N. E. Br., 51, 109, 110, 786, 793.
incarnatus G. Don, 297.
incarnatus var. *albus* G. Don, 298.
mammillaris G. Don, 280.
mennellii Luckhoff, 55, 143, 786, 795, 798.
nebrownii Dtr., 797.
pallidus Luckhoff, 55, 143, 786, 795, 799, 804.
parviflorus Sweet, 303.
parvulus N. E. Br., 62, 67, 129, 786, 798, 814, 815.
piliferus Sweet, 1000.
pillansii N. E. Br., 61, 67, 68, 129, 786, 804, 805-807, 809.
pillansii var. *fuscatus* N. E. Br., 67, 786, 805, 806-807.
pillansii var. *inconstans* N. E. Br., 61, 62, 786, 805, 806.
pulcher N. E. Br., 55, 142, 786, 796-797, 798, 809.
pulcher var. *nebrownii* Wh. et Sl., 29, 57, 795, 796, 797.
pullus R. Br., 280.
punctatus R. Br., 57, 58, 85, 95, 784, 786, 787-790, 792.
ramosus Sweet, 299.
rorifluus Decne., 443.
ruschii Nel., 812-813.
serrulatus N. E. Br., 810.
- Plagiostelma* K. Schum., 821.
Podanthes Haw., 94, 409, 410, 412, 421, 422, 784, 1119, 1123.
ciliata Haw., 723.
geminata Nich., 808.
incarnata Sweet, 297.
irrorata Haw., 445.
lepida Haw., 689.
pulchella Haw., 686.
pulchra Haw., 441.
pulchra var. *beta* Haw., 442.
pulchra var. *major* Sweet, 442.
pulchra var. *verrucosa* G. Don, 442.
roriflua Sweet, 443.
verrucosa Haw., 438.
Podostelma Brgr., 822, 844.
Quaqua N. E. Br., 151, 153, 314.
hottentotorum N. E. Br., 309, 1122.
Sarcocodon N. E. Br., 151, 244.
speciosus N. E. Br., 243.
Sarchophagophilus Dtr., 151, 277.
armatus Dtr., 279.
winkleri Dtr., 277.
winklerianus Dtr., 277.
Scytanthus Hook., 1050.
burkei Hook., 1059.
currori Hook., 1059.
gordoni Hook., 1083.
Spathulopetalum Chiov., 151, 188.
dicapuae Chiov., 187.
Stapelia L., 10, 78, 94, 148, 154, 155, 409-428, 1095, 1122.
acuminata Mass., 57, 58, 70, 85, 424, 453, 496-498.
acuminata var. *brevicuspis* N. E. Br., 57, 497, 498.
adscendens Roxb., 168.
affinis N. E. Br., 594.
alba Rother, 716.
albicans Sprenger, 700, 701, 716.
albo-castanea Marloth, 29, 126, 424, 524.
ambigua Mass., 60, 66, 85, 94, 417, 425, 483, 550-552.
ambigua var. *fulva* Sweet, 50, 66, 94, 416, 551, 552.
amoena Rüst, 716.
anemoniflora Deff., 250.
ango A. Rich., 262, 268.
anguinea Jacq., 94, 712.
angulata Tod., 104, 679, 680.
angulosa Tod., 716.
angulosa var. *charybdis* Dammann, 716.
angulosa var. *kreusa* Dammann, 718.
angulosa var. *nemea* Dammann, 685.
angulosa var. *thi* Dammann, 719.
aperta Mass., 342, 1122.
aphylla Burman, 280.

Stapelia — Continued

- arenosa* Luckhoff, 70, 143, 422, 452, 453, 454, 498, 1096.
arida Mass., 321.
arnoti N. E. Br., 51, 109, 110, 416, 425, 585.
articulata Ait., 735.
asterias Mass., 72, 85, 94, 426, 479, 547, 587, 603, 605, 606-612, 613.
asterias var. *gibba* N. E. Br., 67, 609, 612.
asterias var. *lucida* N. E. Br., 61, 62, 63, 64, 68, 71, 94, 425, 569, 607, 608-611, 612, 631, 660.
atrata Tod., 705.
atrata var. *rufescens* Dammann, 719.
atrata var. *tigrina* Dammann, 719.
atropurpurea Rüst, 716.
atropurpurea var. *pan* Rüst, 719.
atropurpurea var. *rosea* Rüst, 719.
atropurpurea Salm-Dyck, 705.
atrosanguinea N. E. Br., 973.
auobensis Nel, 145, 423, 472-473.
aurea Dtr., 466.
ausana Dtr. et Brgr., 29, 126, 424, 506.
barbata Hort., 775.
barbata Mass., 93, 951.
barklyi N. E. Br., 57, 109, 420, 428, 669, 693, 1123.
bayfieldii N. E. Br., 684, 685.
beffoniana Schultes, 707.
bella Brgr., 133, 419, 428, 658-660, 678.
bellona Brgr., 716.
bergeriana Dtr., 29, 126, 133, 426, 622.
beukmanii Luckhoff, (1934), 1095, 1097.
beukmanii Luckhoff, (1935), 452.
bicolor Brgr., 679, 681, 690.
bidentata Salm-Dyck, 707.
bifolia Schultes, 707.
bijliae Pillans, 68, 143, 428, 674-675.
bisulca J. Donn, 707.
bisulca Rüst, 716.
bisulca var. *proboscidea* Rüst, 716.
brevirostris Willd., 486.
buffoniana G. Don, 707.
buffonis Lodd., 707.
bufonia J. Donn, 94, 696, 707.
bufonis Sims, 707.
burtinii Rüst, 716.
cactiformis Hook., 1032.
caespitosa DC., 779.
caespitosa Mass., 93, 769.
calycina Rüst, 716.
campanulata Mass., 93, 946.
campanulata Sess. et Moc., 10.
campanulata Sims, 948.
cantabrigiensis Brgr., 548.
capelleana Rüst, 716.
caroli-schmidtii Dtr. et Brgr., 524.
caudata Thunb., 82.

Stapelia — Continued

- charybdis* Brgr., 716.
chlorotica Rüst, 717.
chrysostephana Deffl., 254.
ciliata Thunb., 723.
ciliolata Rüst, 668.
ciliolata Tod., 707.
ciliolulata Tod., 668, 707.
cincta Marloth, 62, 118, 424, 510.
circe Brgr., 717.
clavata Decne., 948.
clavata Willd., 1032, 1033.
clavicornia Verdoorn, 43, 135, 417, 427, 642-643.
clavigera Jacq., 93, 948.
clypeata J. Donn, 93, 707.
comata Jacq., 94, 596.
compacta Schultes, 770.
comparabilis Wh. et Sl., 419, 428, 660, 663-666, 1137.
concinna Mass., 72, 85, 415, 424, 489-491.
concinna var. *paniculata* N. E. Br., 59, 93, 483, 489, 490-491.
concolor Salm-Dyck, 775.
conformis N. E. Br., 49, 63, 64, 65, 66, 103, 426, 543, 544, 565, 616-618.
conformis var. *abrasa* N. E. Br., 63, 618.
connata Rüst, 685.
conspurcata Willd., 93, 707.
cooperi N. E. Br., 393, 394.
corderoyi Hook. fil., 749.
courcelli Hort., 598.
crassa J. Donn, 923.
cruciformis Hort., 521.
cupularis N. E. Br., 679, 680.
curtisii Rüst, 717.
curtisii Schultes, 707.
cylindrica Hort., 978.
cylista Luckhoff, 58, 138, 425, 525, 530.
decaisneana Chev., 264.
decora Mass., 810.
decora Rüst, 717.
deflexa Jacq., 72, 92, 93, 415, 424, 486-488, 601, 615, 621, 660.
deflexa var. *atropurpurea* Hort., 415, 488.
deflexa var. *brownii* Schinz, 57, 487, 488.
deflexa Willd., 93.
dejecta Salm-Dyck, 603.
dentata Rüst, 717.
denticulis L., 590, 691.
depilata Rüst, 717.
depressa Jacq., 94, 598.
desmetiana N. E. Br., 60, 61, 63, 64, 65, 66, 112, 416, 425, 559-564, 570.
desmetiana var. *apicalis* N. E. Br., 60, 61, 65, 560, 562, 565.
desmetiana var. *fergusonae* R. A. Dyer, 55, 560, 564.

Stapelia — Continued

- desmetiana var. pallida N. E. Br., 61, 128, 560, 562-563.
 digitaliflora Pfersd., 1099, 1101.
 dinteri Brgr., 30, 126, 415, 424, 504-505, 506.
 discoidea Obermeijer, 143, Addenda H.
 discolor Rüst, 717.
 discolor var. electra Rüst, 717.
 discolor Tod., 104, 679, 682.
 discolor var. bellona Dammann, 716.
 discolor var. medusa Dammann, 718.
 discolor var. tricolor Dammann, 719.
 divaricata Mass., 68, 85, 93, 424, 507-508, 509, 1095.
 divergens N. E. Br., 700, 717.
 dummeri N. E. Br., 9, 25, 26, 134, 411, 422, 429-431, 435, 1095.
 dummeri var. glabra Bally, 431, 1145.
 duodecimfida Jacq., 93, 954, 955.
 dwequensis Luckhoff, 69, 142, 424, 511-512.
 echinata Hort., 753.
 electra Brgr., 717.
 elegans Mass., 744.
 elongata Sweet, 595.
 engleriana Schlechter, 61, 62, 68, 99, 120, 417, 427, 640-641.
 erecta Rüst, 717.
 erecta Sess. et Moc., 10.
 erectiflora N. E. Br., 70, 110, 424, 513-514, 517, 641.
 europaea Guss., 222.
 europaea Webb, 229.
 fasciculata Thunb., 82.
 fissirostris N. E. Br., 484.
 fissirostris Jacq., 86, 93, 483.
 flavirostris N. E. Br., 12, 50, 52, 53, 54, 55, 57, 60, 62, 63, 64, 65, 68, 74, 96, 417, 425, 523, 561, 566-570, 1119.
 flavopurpurea Marloth, 52, 53, 55, 60, 62, 118, 424, 492-495.
 flavopurpurea var. fleckii Wh. et Sl., 30, 52, 493, 494-495.
 fleckii Brgr. et Schlechter, 495.
 forcipis Phillips et Letty, 66, 426, 632-633.
 fucosa N. E. Br., 63, 129, 422, 437.
 furcata N. E. Br., 334, 354, 359, 423, 474.
 fuscata Hort., 676.
 fuscata Jacq., 94, 657.
 fuscopurpurea N. E. Br., 72, 109, 425, 586.
 gariensis Pillans, 54, 57, 86, 129, 426, 613.
 geminata Mass., 93, 95, 808.
 gemmifera Salm-Dyck, 717.
 gemmiflora Mass., 50, 53, 54, 60, 61, 62, 68, 69, 71, 85, 93, 413, 423, 475, 476, 477-481, 674, 675, 1140.
 gemmiflora var. densa N.E. Br., 60, 62, 481.

Stapelia — Continued

- gemmiflora var. hircosa N. E. Br., 53, 62, 68, 69, 71, 93, 475, 479, 480, 481.
 gettleffii Pott, 32, 43, 44, 45, 46, 49, 131, 396, 417, 425, 553-558.
 gigantea N. E. Br., 9, 34, 36, 43, 47, 49, 102, 416, 425, 525, 535, 536-541, 542, 614, 977, 1138.
 gigantea var. pallida Phillips, 537, 540-541.
 glabricaulis N. E. Br., Front. Vol. II, 63, 64, 100, 426, 628, 633, 634-636.
 glabricaulis Schlechter, 627.
 glabriflora N. E. Br., 603, 604.
 glandulifera Willd., 515.
 glanduliflora Mass., 58, 70, 85, 93, 415, 424, 490, 493, 515-516.
 glanduliflora var. emarginata N. E. Br., 70, 516.
 glanduliflora var. haworthii Brgr., 515, 516.
 glanduliflora var. massonii Brgr., 515, 516.
 glauca J. Donn, 94, 654.
 glauca var. beta Haw., 657.
 glaucescens Rüst, 656.
 glomerata Schultes, 781.
 gordonii Hook., 1083.
 gordonii Mass., 1076.
 grandiflora Mass., 46, 55, 62, 64, 65, 66, 85, 94, 410, 416, 425, 545-549, 552, 567, 585, 586, 1131, 1135.
 grandiflora var. lineata N. E. Br., 566.
 gussoneana Jacq. fil., 222.
 guttata Mass., 911.
 hamata Jacq., 94, 603.
 hanburyana Brgr. et Rüst, 133, 695, 701, 717.
 herbacea Sess. et Moc., 10.
 herrei Nel, 57, 140, 417, 427, 637, 639, 1126, 1128.
 hircola Poirer, 479.
 hircosa Jacq., 93, 479.
 hircosa var. densa N. E. Br., 481.
 hirsuta L., 12, 57, 62, 70, 78, 82, 88, 92, 94, 409, 410, 426, 483, 547, 555, 558, 589, 590-604, 605, 615, 1112, 1114, 1115, 1118, 1128.
 hirsuta var. affinis N. E. Br., 594.
 hirsuta var. atra Lindl., 590.
 hirsuta var. comata N. E. Br., 94, 596.
 hirsuta var. depressa N. E. Br., 94, 597, 598-599.
 hirsuta var. grata N. E. Br., 597.
 hirsuta var. longirostris N. E. Br., 69, 599.
 hirsuta var. lutea N. E. Br., 594.
 hirsuta var. patula N. E. Br., 69, 76, 94, 483, 593, 595, 597, 599.
 hirsuta var. unguipetala N. E. Br., 600-602, 609.

Stapelia — Continued

- hirtella* Jacq., 93, 779.
hispida Horn., 718.
hispidula Hornem., 515.
horizontalis N. E. Br., 693, 709.
humilis Mass., 919.
hystrix Hook. fil., 892.
immaculata Rüst., 685.
imelmaniae Pillans, 69, 143, 416, 426 620-621.
incarnata L. fil., 297, 1112.
incomparabilis N. E. Br., 419, 428, 661-662, 665.
inflexa Rüst., 718.
inodora Decne., 707.
intermedia N. E. Br., 333, 1123.
irrorata Loddiges, 441.
irrorata Mass., 72, 85, 422, 445-446.
jacquiniana Schultes, 744.
jucunda N. E. Br., 50, 52, 53, 55, 100, 128, 424, 449, 501-503, 512, 524.
jucunda var. *deficiens* N. E. Br., 60, 503.
juttæ Dtr., 30, 126, 422, 456-458, 462.
juvencula Jacq., 93, 625.
knobelii Phillips, 366.
kreusa Brgr., 718.
kwebensis N. E. Br., 10, 32, 44, 45, 124, 125, 327, 412, 422, 458, 459, 461, 463-465.
kwebensis var. *longipedicellata* Brgr., 30, 118, 458, 464-465, 1135.
laevigata Schultes, 782.
laevis Decne., 651.
lanifera Haw., 590.
lanigera Loud., 590.
leendertiae N. E. Br., 47, 49, 131, 146, 416, 425, 526-528, 530.
lentiginosa Curtis, 911.
lepida Jacq., 72, 86, 92, 94, 420, 428 689-690.
limosa Salm-Dyck, 689.
longidens N. E. Br., 35, 118, 265, 396, 410, 422, 431, 432-433.
longii Luckhoff, 61, 66, 143, 427, 644-645.
longipedicellata N. E. Br., 464.
longipes Luckhoff, 30, 41, 144, 427, 646-648, 652.
longipes var. *namaquensis* Luckhoff, 57, 427, 646, 648, 652, 1145.
lucida DC., 609.
lunata Dammann, 695, 718.
lunata var. *minor* Rüst., 718.
lunata var. *umbrosa* Rüst., 718.
lunata Sweet, 588.
lutea Sess. et Moc., 10.
luxurians Dammann, 718.
maccabeana Wh. et Sl., 72, 425, 543-544.
macowani N. E. Br., 61, 64, 112, 417, 426, 617, 618, 619, 1115.

Stapelia — Continued

- macrocarpa* Martelli, 855.
macrocarpa A. Rich., 851, 852.
maculata Poiret, 671.
maculosa J. Donn, 93, 428, 670, 671-673.
maculosoides N. E. Br., 420, 428, 670, 672.
magna Brgr., 548.
mammillaris L., 280, 1112.
margarita Sloane, 72, 425, 582-584.
marginata Rüst., 718.
marginata Willd., 710.
marientalensis Nel, 30, 145, 413, 423, 470-471, 473, 1135.
marlothii N. E. Br., 34, 118, 426, 587.
marmorata Hulle, 705.
marmorata Jacq., 711.
marmorata Rüst., 718.
massoni Haw., 604.
massoni var. *livida* N. E. Br., 604.
mastodes Jacq., 93, 770.
medusa Brgr., 718.
megara Brgr., 718.
melanantha Schlechter, 354.
micrantha Rüst., 718.
milleri Hort., 718.
mirabilis Dammann, 718.
miscella N. E. Br., 61, 128, 422, 455.
mixta J. Donn, 671.
mixta Mass., 85, 693, 711.
mixta Rüst., 718.
mixta var. *pentagona* Rüst., 718.
molonyæ Wh. et Sl., 25, 411, 422, 435.
monstrosa Steudel, 707.
moschata J. Donn, 479.
muley hassan Brgr., 718.
multiflora DC., 604.
multiflora Rüst., 718.
multilineata Rüst., 718.
munbyana Rüst., 719.
muricata Rüst., 685.
mutabilis Hulle, 712.
mutabilis Jacq., 72, 92, 93, 104, 419, 420, 428, 676-685, 690, 695.
mutabilis var. *bicolor* Dammann, 681.
mutabilis var. *circe* Dammann, 717.
mutabilis var. *discolor* N. E. Br., 682.
mutabilis var. *furva* N. E. Br., 683.
mutabilis var. *jacquini* Brgr., 93, 683.
mutabilis var. *megara* Dammann, 718.
mutabilis var. *nemesis* Dammann, 685.
mutabilis var. *thetis* Dammann, 685.
namaquensis N. E. Br., 57, 109, 420 428, 667-668, 693, 1122, 1128.
namaquensis var. *bidens* N. E. Br., 57, 668.
namaquensis var. *ciliolata* N. E. Br. 57, 668.
namaquensis var. *minor* N. E. Br., 667.
namaquensis var. *tridentata* N. E. Br., 57, 668.

Stapelia — Continued

- natalensis* Rüst., 719.
neglecta Todaro, 676.
neliana Wh. et Sl., 57, 140, 410, 417, 427, 637, 638-639, 1128, 1145.
nemea Brgr., 685.
nemesis Brgr., 685.
nobilis N. E. Br., 14, 32, 33, 34, 43, 45, 46, 48, 49, 50, 416, 425, 525, 528, 530, 531-534, 536, 537, 538, 539, 541, 1095.
normalis Jacq., 94, 691.
normalis Lindl., 715.
nouhuysii Phillips, 70, 135, 415, 424, 517-518.
nudiflora Pillans, 71, 132, 426, 626.
obliqua Willd., 707.
obscura N. E. Br., 545.
ocellata Jacq., 93, 914.
olivacea N. E. Br., 50, 53, 55, 60, 62, 63, 109, 415, 424, 461, 462, 520, 521-523.
ophioncola Schlechter, 707.
ophiuncula Haw., 707.
orbicularis Lodd., 707.
orbiculata J. Donn, 707.
pachyrrhiza Dtr., 11, 30, 126, 423, 475.
pallens Hort., 507.
pallida Wendl., 507.
palmata Rüst., 719.
pan Brgr., 719.
paniculata Willd., 93, 490.
panifolia Rüst., 719.
parcololate Sess. et Moc., 10.
parviflora Mass., 303.
parvipuncta N. E. Br., 52, 62, 110, 412, 422, 447-449.
parvipuncta var. *truncata* Luckhoff, 69, 448-449, 1145.
parvipunctata Rüst., 719.
parvipunctata K. Schum., 447.
parvipunctata Tod., 719.
pasadenensis Wh. et Sl., 549.
passerini Tod., 676.
patentirostris N. E. Br., 598.
patula Willd., 595.
patula var. *depressa* N. E. Br., 598.
patula var. *longirostris* N. E. Br., 599.
pearsonii N. E. Br., 30, 132, 424, 461, 462, 519-520.
pedunculata Mass., 57, 85, 94, 342, 410, 418, 427, 647, 648, 650, 651-653, 1119, 1122, 1127, 1132.
peglerae N. E. Br., 63, 127, 416, 426, 609, 613, 629-631, 636.
picta N. E. Br., 709.
picta J. Donn, 712.
pilifera L. fil., 1000, 1112.
pillansii N. E. Br., 62, 129, 425, 571-576.

Stapelia — Continued

- pillansii* var. *attenuata* N. E. Br., 62, 573, 574-576.
pillansii var. *fontinalis* Nel, 62, 576, 1145.
planiflora Jacq., 94, 712.
planiflora var. *marginata* Willd., 710.
plantii Hook. fil., 64, 66, 102, 426, 614-615.
plicata Salm-Dyck, 719.
polita Hort., 753.
portae-taurinae Dtr. et Brgr., 30, 41, 57, 126, 422, 453, 459-460, 462.
prometheus Brgr., 713.
protensa Hornem., 654.
pruinosa Mass., 323.
pulchella Mass., 64, 66, 67, 85, 420, 428, 439, 686-688, 693.
pulchra Schultes, 441.
pulla Ait., 280, 545.
pulvinata J. Donn, 590, 592.
pulvinata Mass., Front. Vol. II, 57, 85, 416, 425, 579-581, 583, 584, 952.
punctata Mass., 784, 787.
purpurea Dammann, 719.
purpurea var. *nigrescens* Rüst., 719.
purpurea var. *urania* Dammann, 719.
putida Brgr., 719.
quadrangula Forsk., 79, 252.
quinqueangularis Sess. et Moc., 10.
quinquenervis Schultes, 707.
radiata Jacq., 93, 744.
radiata Link, 772.
radiata Rüst., 719.
radiata Sims, 776.
ramosa Mass., 299.
reclinata Mass., 93, 772.
reclinata Sims, 779.
rectiflora Rüst., 719.
rectiflora var. *viridula* Rüst., 719.
reflexa Haw., 486.
replicata Jacq., 93, 776.
reticulata Mass., 93, 923.
reticulata var. *deformis* Jacq., 93.
retusa Rüst., 719.
retusa Schultes, 713.
revoluta Curtis, 656.
revoluta Mass., 42, 58, 70, 85, 94, 302, 419, 428, 513, 654-657, 660, 678, 693.
revoluta var. *fuscata* N. E. Br., 94, 657.
revoluta var. *glaucescens* Brgr., 656.
revoluta var. *tigridia* N. E. Br., 656, 678.
rogersii L. Bolus, 390.
roriflua Jacq., 93, 443.
rosea Brgr., 719.
rubiginosa Nel, 57, 422, 450-451, 1127.
rufa Haw., 483.
rufa Mass., 62, 68, 69, 85, 414, 423, 482-485.
rufa var. *attenuata* N. E. Br., 63, 68, 484-485.

Stapelia — Continued

- rufa* var. *fissirostris* Wh. et Sl., 68, 93, 483, 484.
rufescens Brgr., 719.
rufescens Hort., 595.
rufescens Salm-Dyck, 482.
rugosa J. Donn, 94, 715.
rugosa Rüst, 719.
rugosa var. *coronata* Rüst, 719.
rugosa Wendl., 443.
ruschiana Dtr., 30, 126, 144, 427, 648 649-650, 1134.
salmiana Rüst, 98, 719.
sanguinea Pasq., 685.
sanguinea Rüst, 719.
schinzii Brgr. et Schlechter, 30, 32, 80, 118, 416, 425, 577-578, 622.
scutellata Tod., 700, 719.
scylla Dammann, 719.
semota N. E. Br., 25, 26, 422, 435, 436, 1122, 1146.
senilis N. E. Br., 64, 416, 425, 564-565, 1065.
serrulata Jacq., 93, 810.
similis N. E. Br., 57, 132, 422, 458, 459, 461-462, 520.
simsii Schultes, 624.
sisyphus Dammann, 719.
sororia Hook. fil., 598.
sororia Jacq., 94, 595.
sororia var. *alia* Jacq., 94, 588.
sororia Lodd., 590.
sororia Mass., 72, 85, 426, 588-589.
spectabilis Haw., 545.
stellaris Haw., 606.
stellaris Jacq., 94, 609.
stellaris Lodd., 594.
stellata St. Lag., 606.
stricta Sims, 72, 87, 424, 508, 509, 510.
stultitoides Luckhoff, 70, 143, 422, 452-453, 454, 1096, 1145.
stygia Schultes, 477.
subulata Forsk., 79, 176.
surrecta N. E. Br., 62, 69, 118, 424, 499-500.
surrecta var. *primosii* Luckhoff, 499, 500, 1145.
tapscottii Verdoorn, 397.
thetis Brgr., 685.
thi Brgr., 719.
thureti Croucher, 789.
tigridia Decne., 656.
tigrina Brgr., 719.
tigrina Nel, 638.
tomentosa Hort., 627.
tricolor Brgr., 719.
tridentata Rüst, 668.
tridentata Schultes, 672.
tridentata Tod., 719.
trifida Tod., 104, 684, 685.

Stapelia — Continued

- trisolca* J. Donn., 93, 715.
tsomoensis N. E. Br., 63, 100, 109, 426, 627-628.
tubata Jacq., 93, 954.
tuberculata Schultes, 782.
tuberculis Burman, 590.
tubulosa Hort., 954.
umbellata Roxb., 202.
umbilicata Rüst, 719.
umbilicata Thuret, 676.
umbonata Pillans, 57, 129, 423, 476.
uncinata Jacq. fil., 588.
unguipetala N. E. Br., 600.
uranus Rüst, 685.
uspenskyi Rüst, 719.
vaga N. E. Br., 381.
variegata Curtis, 707.
variegata Gouas, 595.
variegata Jacq., (1778), 712.
variegata Jacq., (1806-19), 707.
variegata L., 3, 10, 12, 63, 68, 69, 70, 72, 74, 77, 78, 79, 80, 87, 92, 94, 98, 104, 409, 420, 428, 667, 680, 688, 690, 691-719, 978, 1111, 1112, 1113, 1115, 1118, 1119, 1128, 1131, 1138.
variegata var. *asparagensis* Jacobsen, 719.
variegata var. *atrata* N. E. Br., 104, 694, 700, 705.
variegata var. *atropurpurea* N. E. Br., 694, 697, 700, 704, 705.
variegata var. *brevicornis* N. E. Br., 694, 700, 705.
variegata var. *bufonia* N. E. Br., 94, 694, 695, 702, 704, 707.
variegata var. *clypeata* N. E. Br., 93, 94, 694, 700, 702, 707, 709.
variegata var. *conspurcata* N. E. Br., 93, 694, 701, 707, 710, 711.
variegata var. *curtisii* N. E. Br., 694, 702, 706, 707.
variegata var. *horizontalis* N. E. Br., 693, 694, 700, 706, 708, 709.
variegata var. *laeta* N. E. Br., 694, 701, 703, 708, 709.
variegata var. *marginata* N. E. Br., 694, 702, 710.
variegata var. *marmorata* N. E. Br., 61, 94, 694, 700, 704, 708, 711.
variegata var. *mixta* N. E. Br., 672, 693, 694, 701, 706, 711.
variegata var. *normalis* Brgr., 691.
variegata var. *pallida* N. E. Br., 694, 701, 703, 704, 712.
variegata var. *picta* N. E. Br., 94, 420, 694, 701, 703, 712.
variegata var. *planiflora* N. E. Br., 94, 694, 702, 712, 713.

Stapelia — Continued

- variegata* var. *prometheus* Dammann, 694, 700, 713.
variegata var. *retusa* N. E. Br., 694, 701, 712, 713.
variegata var. *rugosa* N. E. Br., 94, 694, 701, 714, 715.
variegata var. *trisolca* N. E. Br., 93, 694, 695, 702, 703, 715.
venusta Jacq., 93, 916.
venusta var. *minor* Jacq., 94.
venusta Mass., 911.
verrucosa Curtis, 442.
verrucosa Jacq., 441.
verrucosa Mass., 54, 64, 65, 72, 85, 92, 93, 412, 420, 422, 437, 438-440, 445, 455, 686, 688, 693, 899, 1119.
verrucosa var. *conspicua* N. E. Br., 442, 444.
verrucosa var. *pallescens* N. E. Br., 442, 443.
verrucosa var. *pulchra* N. E. Br., 51, 60, 61, 63, 66, 68, 93, 439, 441, 442.
verrucosa var. *punctifera* N. E. Br., 442.
verrucosa var. *robusta* N. E. Br., 442.
verrucosa var. *roriflua* N. E. Br., 93, 442, 443-444, 446.
vetula Mass., 71, 85, 93, 416, 426, 623-625.
vetula var. *juvencula* Brgr., 93, 625.
vetula var. *simsii* N. E. Br., 624.
vetula Sims, 624.
villosa N. E. Br., 590.
virens Link, 548.
virescens N. E. Br., 55, 60, 61, 109, 413, 423, 466-469, 479, 1137.
vittata Sickenb., 179.
wendlandiana Schultes, 443.
wilmaniae Luckhoff, 47, 425, 529-530.
woodfordiana Schultes, 691.
woodii N. E. Br., 50, 120, 396, 411, 412, 422, 431, 433, 434, 435, 474.
youngii N. E. Br., 34, 144, 425, 542.
Stapelianthus Choux, 9, 147, 821, 960-961.
decaryi Choux, 37, 141, 960, 961, 962-963, 964.
madagascariensis Choux, 37, 141, 960, 961, 963, 964.
Stapeliopsis Choux, 960.
madagascariensis Choux, 964.
Stapeliopsis Phillips, 393.
cooperi Phillips, 394.
Stapeliopsis Pillans, 2, 10, 147, 720, 960.
neronis Pillans, 57, 130, 721.
Stapelluma Wh. et Sl., 411, 412, 421, 422.
Stapeltonia Endlicher, 410, 415, 416, 419, 421, 425, 546, 605, 669, 670, 1091, 1119.
Stapletonia Decne., 410.
Stisseria Heister, 78, 409.
flore tessulato Heister, 691.
Stultitia Phillips, 9, 11, 147, 154, 155, 393, 410.
cooperi Phillips, 50, 52, 53, 55, 58, 60, 103, 393, 394-396, 400, 411, 433, 436.
tapscottii Phillips, 32, 45, 46, 47, 48, 49, 53, 144, 285, 392, 393, 395, 397-400, 411.
Tavaresia Welw., 9, 102, 147, 990, 1099-1100, 1123.
angolensis Welw., 27, 102, 1099, 1100, 1101-1102, 1105.
barklyi N. E. Br., 50, 51, 52, 53, 55, 57, 60, 91, 1100, 1103-1105, 1107, 1108.
grandiflora Brgr., Front. Vol. III, 10, 30, 32, 34, 39, 43, 44, 45, 46, 49, 55, 118, 1099, 1100, 1105, 1106-1108, 1139.
grandiflora var. *recta* van Son, 1108, 1145.
Tithymalus africanus Commelin, 1115.
Trichocaulon N. E. Br., 10, 11, 36, 42, 80, 116, 147, 154, 410, 958, 991-996, 1051, 1095, 1123, 1131, 1132.
alstoni N. E. Br., 58, 143, 994, 1008-1009.
annulatum N. E. Br., 41, 61, 143, 994, 997-999, 1026, 1027.
cactiforme N. E. Br., 1, 30, 52, 58, 81, 99, 978, 992, 995, 1022, 1032-1033, 1034, 1038, 1044, 1046, 1127.
cinereum Pillans, 58, 129, 995, 1028, 1030.
clavatum (Willd.), 1033.
columnare Nel, 58, 140, 991, 993, 995, 996, 1023-1024, 1127, 1128.
decaryi Choux, 37, 141, 994, 1006-1007, 1014.
delaetianum Dtr., 30, 41, 126, 995, 1019-1020, 1027, 1035.
dinteri Brgr., 30, 126, 995, 1036-1037, 1137.
engleri Dtr., 30, 55, 993, 996, 1013, 1035, 1038, 1039-1040, 1042.
flavum N. E. Br., 55, 63, 110, 995, 1021-1022.
grande N. E. Br., 62, 129, 994, 1013, 1048.
halenbergensense Dtr., 30, 41, 126, 1013, 1047-1048.
karasmontanum Dtr., 30, 126, 1049.
keetmanshoopense Dtr., 30, 55, 126, 996, 1041-1042.
kubusanum Nel, 1025.
kubusense Nel, 41, 58, 140, 995, 1025-1026, 1027, 1035, 1127.
marlothii N. E. Br., 30, 51, 55, 118, 992, 996, 1034, 1037, 1043-1044.
meloforme Marloth, 30, 55, 118, 993, 995, 1038.
officinale N. E. Br., 30, 51, 52, 53, 55, 992, 994, 1016-1017, 1018, 1038, 1135.
pedicellatum Schinz, 29, 30, 118, 991, 994, 1004, 1014-1015, 1152.
perlatum Dtr., 31, 126, 995, 1027, 1028, 1035.

Trichocaulon — Continued

- pictum* N. E. Br., 58, 118, 996, 1045-1046, 1127.
pilliferum N. E. Br., 31, 41, 59, 61, 63, 68, 71, 82, 85, 86, 991, 994, 998, 1000-1002, 1005, 1007, 1011, 1016, 1021, 1027, 1112, 1123.
pillansii N. E. Br., 62, 129, 994, 1010-1011.
pillansii var. *major* N. E. Br., 1011.
pubiflorum Dtr., 31, 126, 994, 1018, 1035.
rusticum N. E. Br., 56, 118, 994, 1005.
simile N. E. Br., 56, 58, 118, 991, 995, 1026, 1034-1035, 1040, 1046.
sinus-lüderitzii Dtr., 31, 126, 995, 1031, 1052.
sociarum Wh. et. Sl., Addenda M.
triebneri Nel, 31, 145, 994, 1003-1004.
truncatum Pillans, 1029-1030.
Tricholuma Wh. et Sl., 991, 993, 1024.
Tridentea Haw., 94, 409, 410, 413, 421, 423, 467, 1119, 1123.
depressa Schultes, 598.

Tridentea — Continued

- gemmaeflora* Haw., 477.
hircosa Schultes, 479.
juvencula Sweet, 625.
moschata Haw., 479.
paniculata Schultes, 490.
rugosa Schultes, 715.
simpsii Haw., 624.
stygia Haw., 477.
vetula Haw., 623.
Tromotricha Haw., 94, 409, 410, 419, 421, 428, 655, 662, 678, 1119.
ciliata Sweet, 723.
fuscata Haw., 657.
glaucata Haw., 654.
mutabilis Sweet, 676.
mutabilis var. *variabilis* Sweet, 676.
obliqua Sweet, 707.
pruinosa Haw., 323.
revoluta Haw., 654.
Virchowia Vatke, 975.
africana Vatke, 984.

- Aitchison, J. E. T., 193.
 Alston, C., 85, 324.
 Alston, E., 143, 1009.
 Anderson, Mrs. E., Preface, 52.
 Archer, J., 61, 85, 132, 576, 787.
 Arnold, G., Preface, 143, Plate II.
 Arnot, D., 51, 110, 585, 793.
 Arzt, T., Preface, 1056, 1057.
 Atwood, Miss A. C., Preface.
 Aucher-Eloy, P. M. R., 18, 96, 178, 206.
 Auge, J. A., 82.
 Ayres, C., 143, 305, 746.
 Bachmann, A. Q., 77, 78.
 Badenhorst, B., 540, 705.
 Bain, A. G., 69, 100.
 Bain, T. C., 69, 109, 110, 111, 308, 447, 485, 513, 919, 1021, 1085.
 Baines, T., 31, 110, 111, 754.
 Baldrati, I., Preface, 268.
 Balfour, I. B., 17, 117, 214.
 Bally, P. R. O., Preface, 26, 190, 191, 243, 244, 245, 429, 430, 431.
 Banks, Sir J., 83, 84.
 Barber, Mrs. F. W., 11, 12, 64, 65, 66, 100, 109, 361, 502, 636.
 Barker, Miss W. F., 985, Plate XXX.
 Barkly, Miss E. B., 109, 333.
 Barkly, Sir H., 13, 108, 109, 110, 116, 313, 333, 560, 585, 669, 745, 1078, 1086, 1105, 1124, et passim.
 Barkly, Lady, 109.

- Barnard, Lady Anne, 88.
 Barnhart, J. H., Preface.
 Barruel, Prof., 226, 227, 272.
 Bauhin, K., 77.
 Baum, H., 1075.
 Beccari, 262.
 Becker, H., Preface.
 Beecroft, W. I., 309, 357, 377, 475, 505, 688, 730, 815, 822, 868, 893, 1052.
 Béguinot, A., Preface.
 Behrend, F., 860.
 Bent, J. T., 17, 18, 123, 179, 207, 258, 748, 983.
 Bentham Trustees, Preface, 116, 184, 256, 258, 402, 434, 552, 602, 653, 662, 703, 705, 706, 708, 712, 748, 781, 1104.
 Berger, A., 118, 133, 273, 505, 548, 622, 659, 660, 693, 821, 844, 898, 899, 917, 1037, et passim.
 Berger, S., 145, 471.
 Berger, T., Preface.
 Beukman, C., 143, 452, 454, 1095, 1096, 1098.
 Bews, J. W., 49.
 Bien, Miss C., Preface.
 Biswas, K., Preface, 91.
 Blackbeard, Miss G., 932, 933.
 Boerhaave, 79.
 Boissier, 229.
 Bolus, H., 105, 106, 132, 817, 862.
 Bolus, Mrs. L. H. M., Preface, 133, 390.
 Boos, F., 86, 92.
 Boscawen, M. T., Preface.

- Boss, Dr., 145, 1055, 1062, 1069.
 Botanical Gardens and Herbariums:
 Amsterdam, 1116, 1117.
 Antibes, 881.
 Bergianska Tradgarden, Stockholm, Preface, 137.
 Berlin-Dahlem Botanical Museum and Gardens, Preface, 180, 189, 191, 214, 262, 275, 359, 900, 1009.
 Bolus Herbarium, Preface, 129, 133, 293, 392, 675, 998, 1030.
 British Museum (Sloane Herbarium), 1116.
 Brooklyn, Preface.
 Calcutta, Preface, 89, 95.
 Cambridge, 123, 548, 672, 861, 909, 980.
 Darmstadt Technical High School, Preface.
 Durban, 120.
 Grahamstown, 64, 565, 614.
 Italian Colonial Herbarium, 122.
 Karoo Garden, Whitehill, 61, 132, 958.
 Kew, Royal Botanical Gardens, Preface, 92, 99, 100, 109, 111, 113, 116, 179, 192, 207, 213, 234, 235, 246, 305, 316, 372, 381, 462, 519, 534, 560, 567, 589, 661, 665, 670, 765, 769, 777, 817, 828, 841, 862, 897, 935, 983, 1016, 1078, 1086, Plate X, etc.
 Kirstenbosch, National Botanic Gardens, Preface, 106, 132.
 La Mortola, Ventimiglia, 133, 134, 660.
 Leyden, 1117.
 Madras, 97.
 Missouri (St. Louis), Preface, 1142.
 Naples, 97.
 Natal Herbarium, Durban, Preface.
 National Herbarium, Pretoria, 135, 295, 367, 1068.
 New York, Preface, 660.
 Palermo, Preface, 104, 680.
 Pondichery, 96.
 Prince Alfred's Park, Port Elizabeth, 66.
 Schönbrunn Imperial Gardens, 86, 92, 488, 552, 678, 689, 915, 949, 954.
 Stellenbosch, Preface, 380, 813, 1069.
 Botanical Institutes and University Departments:
 Bologna University, Preface.
 Faculté des Sciences, Marseille, Preface.
 Hanbury Botanic Institute, Genoa, Preface, 121, 133.
 Hebrew University, Jerusalem, Preface.
 Padua Botanical Institute, Preface.
 Rome Botanical Institute, 122.
 Royal Academy of Science, Stockholm, 137.
 South African College, 106, 132.
 University of Algiers, Preface, 139.
 University of Lund, Sweden, 137.
 University of Pretoria, 131.
 University of Stellenbosch, 139.
 Bowker, J. H., 100, 109, 628, 841.
 Bradley, R., 77.
 Braggins, S. W. McL., 134.
 Bremekamp, C. E. B., 131, 364.
 Britten, Miss G. V., Preface.
 Britten, J., 74, 83, 84, 1113, 1119.
 Brocklebank, 442.
 Broom, R., Preface, 930, 932, 1064, Addenda B.
 Broun, A. F., 20.
 Brown, Miss E. E., Preface.
 Brown, N. E., Preface, 4, 13, 103, 109, 115, 116, 244, 249, 257, 313, 332, 355, 375, 401, 404, 410, 455, 461, 465, 513, 552, 593, 597, 601, 602, 617, 641, 652, 653, 662, 667, 684, 688, 694, 700, 703, 705, 706, 708, 712, 722, 726, 728, 732, 737, 748, 776, 781, 785, 817, 864, 965, 966, 967, 971, 976, 991, 1016, 1100, 1104, 1123, 1124, et passim.
 Brown, R., 13, 94, 151, 410, 783, 784, 785, 819, 1113, etc.
 Bruce, Miss E. A., 390, 392.
 Burchard, O., 219.
 Burke, J., 99, 641, 751, 801, 1083.
 Burman, J., 78, 280, 297, 1116, 1117, 1118, 1119, 1120.
 Burman, N. L., 1118.
 Burt-Davy, J., 131.
 Callenbach, J. R., 1109.
 Cameron, K. J., 349.
 Carter, B. O., 293.
 Cels, 682.
 Chapman, 28, 102.
 Charles, M., 181.
 Chevalier, A., Preface, 21, 127, 181, 241, 242, 264, 265, etc.
 Chichester, Mrs. E. P., Preface.
 Chiovenda, E., Preface, 183, 187, 188, 233, 260, 852.
 Choux, P., Preface, 960, 961, 962, 963, 964, 1006.
 Clarkson, Miss G., Preface, 143.
 Claudius, H., 1118.
 Clive, Lady, see Countess of Powis.
 Cocks, A. W., Preface, 438, 649.
 Cole, Miss E., 123, 234, 404, 406.
 Collett, Sir Henry, 193.
 Commelin, C., 76, 595, 1117, 1118, 1119.
 Compton, R. H., Preface, 132, 280, 576, 577, 626, 958.
 Cook, F. J., 132, 626.
 Cooper, T., 102, 103, 395, 617.
 Corderoy, J., 670, 751.
 Croizat, L., Preface.
 Crown Agents for the Colonies, London, Preface.
 Cuénod, A., Preface.
 Curror, A. B., 1059.

- Curtis, W., 86, 87, 912.
 Cutak, L., Preface, 1142.
 Dalzell, N. A., 104, 149, 150.
 Dalziel, J. M., 185.
 Dammann and Co., 898, 981.
 Dapper, O., 75, 76.
 d'Apréval, A., 228.
 Darvall, R. J., Preface, 20, 210, 211.
 Decaisne, J., 100, 101, 177, 242, 249, 410, 979, 1100, etc.
 de Candolle, A. P., 98, 100, 264, 410, etc.
 Decary, R., Preface, 37, 141, 963, 964, 1007.
 de Chancel, Mme. B., Preface.
 de Coincy, 231.
 de Coster, Mme., 88.
 Deffers, A., 18, 119, 176, 208, 209, 215, 216, 248, 250, 253, 254, 273, 982, etc.
 de Laet, F., 1020.
 Delafield, Mrs. R., 2.
 Delpino, F., 106.
 Departments of Agriculture, and other Divisions:
 Botanical Experiment Station, Angola, 128.
 Bureau of Plant Industry, Washington, Preface.
 Department of Agriculture, Lourenço Marques, Preface.
 Dept. of Agriculture, Washington, Preface.
 Division of Foreign Plant Quarantine, Washington, Preface.
 Division of Plant Industry, Pretoria, Preface, 134.
 de Sagarra, I., 229.
 de Smet, L., 560.
 de Wildeman, 228.
 de Wyn, G. J., 85, 947.
 Di Capua, 188.
 Dickson, 109, 467, 765.
 Dinter, K., Preface, 6, 12, 13, 122, 125, 126, 151, 277, 278, 309, 320, 340, 377, 378, 379, 386, 457, 459, 460, 465, 468, 475, 494, 505, 506, 524, 578, 622, 649, 650, 796, 797, Front. Vol. III, 847, 928, 929, 975, 986, 990, 1014, 1015, 1016, 1018, 1020, 1027, 1031, 1037, 1039, 1042, 1047, 1055, 1057, 1058, 1071, 1074, 1079, 1082, 1085, 1107, 1108, et passim.
 Dinter, Mrs. K., 125, 126, 458, 505, 1039, 1082.
 Dixie, E., 282, 345.
 Don, G., 508, etc.
 Donn, J., 672, etc.
 Doumergue, F., Preface.
 Drake-Brockman, R. E., Preface, 23, 130, 259, 267, 401, 403.
 Drège, J. F., 96, 105, 110, 567, 1064, 1085, 1127.
 Duggan-Cronin, A. M., 363.
 Dummer, R. A., 134, 430.
 Dunston, A. E. A., Preface.
 Duval, H. A., 741.
 Dyer, R. A., Preface, 48, 64, 135, 136, 284, 290, 380, 392, 563, 757, 847, 933, etc.
 Ecklon, C. F., 99, 105.
 Edgeworth, Miss M., 103.
 Edgeworth, M. P., 103, 165.
 Edwards, S., 87, 508, 581, 652, 656, 778, 948.
 Een, see Ein.
 Ehrenberg, C. G., 95, 237.
 Eig, A., Preface.
 Ein, T. G., 117, 846.
 Elson, Miss C. P., Preface.
 Emberger, M., Preface.
 Endlicher, S., 410.
 Engler, A., 120, 139, 190, 641, 1039, etc.
 Faure, A., Preface.
 Faust, C., Preface, 504.
 Fellowes, Miss F. L., Plate XVII.
 Ferguson, Mrs. E., 560.
 Fischer, C. E. C., 166.
 Fitch, W. H., 87, 113, 217, 226, 522, 615, 895, 1033, 1077, 1101, 1103.
 Fleck, 493.
 Fletcher, Mrs. P., 143.
 Fletcher, Mrs. R. A., 143.
 Font Quer, P., Preface, 229, 230.
 Forbes, H. O., 17, 407.
 Forbes, Miss Helen, Preface.
 Forskal, P., 18, 78, 79, 176, 253.
 Foster, C. W., 293.
 Franklin, Mrs. W., Preface.
 Free, M., Preface.
 Frere, Sir H. Bartle, 104, 107, 149.
 Frick, G. A., 665.
 Fries, R. E., Preface, 137, 830, 831.
 Fries, T., 137, 832.
 Fuller, E. R., Preface, 55, Addenda I.
 Galpin, E. E., Preface, 44, 538.
 Gattefossé, J., Preface, 226, 227, 272.
 Gerrard, W. T., 102, 537.
 Gerstner, Rev., Addenda D., Q.
 Gettleffi, G. F., 131, 555.
 Gheza-Penzig, Mrs. A., Preface.
 Gomes e Sousa, A. de F., Preface, 35, 356, 358, 432, 540, 896, 898, etc.
 Gordon, R. J., 84, 96, 1077.
 Gorindoo, 98, 173, 204, 205.
 Gorini, M. P., 138, 233.
 Gossweiler, J., Preface, 128, 346, 907, 908, 1102.
 Gravely, F. H., Preface, 137, 166, 171, 195, 197, 199, 200, 202, 247, 1122, etc.
 Gray, 552.
 Grimwood and Wykes, 87.
 Gunn, Miss M. D., Preface, 110, 135, 136.
 Gussone, G., 97, 223, 229, 230.
 Guthrie, L., 276, 613, 621, 721, 1028.
 Haage, F. A., Jr., 934.

- Hahn, Major, Addenda F.
 Hanbury, Sir Thomas, 121, 133, 134, 660.
 Harney, Mrs. W. D., 539.
 Hart, H. C., 119, 218.
 Hartog, J., 1119, 1120.
 Harvey, W., 105.
 Hastings, C. G., 193.
 Hawks, Mrs. E. B., Preface.
 Haworth, A. W., 13, 93, 94, 95, 96, 116, 202, 410, 483, 508, 516, 652, 657, 727, 732, 741, 769, 771, 780, 781, 782, 784, 819, 1124, et passim.
 Heister, L., 78, 79.
 Helm, Mrs. M. M., Preface.
 Henderson, 90, 91, Plate I.
 Hermann, P., 77, 1114, 1115, 1116, 1119, 1120.
 Herre, C., 1128.
 Herre, H., Preface, 54, 56, 80, 81, 139, 140, 317, 319, 327, 380, 451, 456, 471, 552, 637, 638, 778, 821, 823, 874, 888, 911, 987, 988, 997, 1003, 1004, 1008, 1015, 1023, 1024, 1025, 1026, 1060, 1061, 1069, 1070, 1112, 1127, 1128, 1129, 1130, 1131, 1132, Addenda A, C, G, K, P, et passim.
 Heurnius, J., 74, 75, 819, 1109, 1111, 1113, 1114, 1120.
 Heurnius, O., 1109, 1113.
 Hewitt, J., 64.
 Hiern, W. P., 102, 347.
 Hildebrandt, J. M., 112, 189, 984.
 Hill, Sir A. W., Preface.
 Hirsch, L., 18, 213.
 Hislop, 144, 945.
 Holmes, E. M., 1016.
 Holub, E., 73, 111, 112, 382.
 Hood, 1051.
 Hooker, Sir J. D., 101, 102, 103, 111, 112, 206, 226, 536, 751, 975, 978, 983, etc.
 Hooker, Sir W. J., 87, 111, 1032, 1033, 1051, etc.
 Hurling and Neil, 138, 525.
 Hutchinson, J., 185.
 Immelman, Mrs., 143, 621.
 Jacquin, J. F., 92.
 Jacquin, N. J. de, 12, 91, 92, 93, 94, 439, 443, 483, 484, 487, 491, 551, 589, 596, 598, 603, 625, 657, 676, 678, 683, 689, 692, 704, 708, 709, 710, 713, 714, 715, 771, 772, 777, 780, 809, 914, 917, 949, 955, et passim.
 Jahandiez, E., Preface, 153, 221, 266, 270, 272.
 James, H. W., Preface, 59, 85, 729, 769.
 Janse, A. J. T., 141, 541.
 Jarabedian, S., Preface.
 Jex-Blake, A. J., Preface, 239, 405.
 Jex-Blake, Lady Muriel, Preface, 25, 239, 406.
 Johnstone, Dr., 103.
 Jones, N., 143.
 Joubert, J. K., 318, 1110.
 Juby, 560.
 Karsten, Miss M. C., 116, 1064.
 Keith, D. R., 135, 291.
 Kerner, J., 202.
 Kesselring, W., Preface.
 Kirk, Sir J., 107, 235, 243, 828, 943.
 Kirk, J. W. C., 107, 943.
 Kirsten, F. H., Addenda A.
 Kirsten, J. F., Preface, 45, 355, 357, 903, 1108.
 Knobel, J. C., Preface, 32, 135, 366.
 Knobel, J. C. J., Preface, 32, 48, 532, 555, 756.
 Kruger, Mrs. P., 353.
 Kubitz, R., 126.
 Kuntze, O., 78.
 Kyd, R., 89.
 La Gasca, 229.
 Lang, H., Preface, 44, 141, 285, 288, 289, 294, 300, 318, 338, 344, 364, 365, 368, 390, Front. Vol. II, 464, 480, 563, 725, 739, 762, 798, 807, 849, 913, 920, 921, 927, 928, 930, 931, 932, 936, 944, 945, 966, 967, 973, 1050, 1051, 1053, 1067, 1068, 1071, 1072, 1152, Addenda C, D, J, N, etc.
 Lansdell, Miss K. A., 576.
 Lanza, D., Preface, 104.
 Lee, H. E., 143, 998.
 Lee, J., 84.
 Leendertz, Miss, see Mrs. Pott.
 Lemaire, C., 264, 265.
 Leslie, T. N., Preface, 412, 553, 562, 571, 901.
 Letty, Miss C., Preface, 136, 287, 289, 290, 291, 328, 335, 337, 339, 343, 363, 366, 387, 391, 393, 397, 414, 415, 441, 489, 503, 518, 546, 561, 608, 617, 632, 634, 640, 642, 731, 759, 761, 768, 776, 785, 792, 802, 806, 886, 889, 900, 902, 922, 937, 941, 942, 946, 951, 966, 969, 974, 1002, 1035, 1067, 1068, 1071, 1104, 1108, Plates III, IV, V, VII, IX, XI, XII, XIII, XIV, XVI, XVIII, XX, XXI, XXII, XXIII, XXIV, XXV, XXVI, XXVII, XXXI, XXXIII, XXXIV, XXXV, XXXVIII, XXXIX, Addenda Q, etc.
 Letty, Mrs. 146.
 Levisseur, 934.
 Levy, B., Preface, 34, 143, 285, 387, 936.
 Lewis, Miss G. J., 1029.
 Lewis, L. R., Preface, 664.
 Lichtenstein, M. H. K., 91, 1105.
 Liebenberg, C. D. B., Preface, 64.
 Linnaeus, 71, 77, 78, 280, 409, 593, 692, 1113, 1114, 1116, 1117, 1120, etc.
 Linnaeus (the younger), 71, 297, 1000, 1114.
 Lister, Mrs. G. I., Preface.
 Loddiges, C., 87, 776, 949.
 Loddiges, G., 87.

- Loder, Sir Edmond, 861.
 Loesener, L. E. T., 905.
 Logan, J. D., 576.
 Long, F. R., Preface, 66, 143, 644.
 Lort-Phillips, E., 123.
 Lort-Phillips, Mrs. E., 23, 861, 909, 980.
 Louw, Mrs. J. H., 495.
 Luckhoff, C., *Front.* Vol. I, Preface, 40, 56, 58, 67, 69, 142, 283, 287, 301, 302, 306, 307, 310, 312, 313, 314, 315, 319, 324, 325, 326, 343, 351, 352, 353, 417, 418, 448, 449, 450, 451, 452, 453, 454, 459, 468, 470, 496, 499, 500, 503, 511, 512, 514, 517, 525, 529, 530, 574, 591, 592, 593, 614, 644, 646, 647, 648, 652, 674, 734, 736, 766, 770, 773, 779, 787, 788, 789, 790, 791, 796, 797, 798, 799, 803, 804, 806, 862, 863, 865, 866, 869, 870, 873, 887, 890, 891, 940, 945, 989, 993, 994, 999, 1000, 1010, 1012, 1013, 1019, 1026, 1039, 1041, 1047, 1062, 1091, 1092, 1093, 1094, 1095, 1096, 1097, Plates VI, VIII, XV, XIX, XXVIII, XXIX, XXXII, XXXVI, XXXVII, et passim.
 Luckhoff, J., Preface, 53, 142, 311, 331, 449, 512, 575, 648, 674, 734, 771, 784 795, 865, 867, 938, 1095, 1118, 1119, etc.
 Lugard, E. J., Preface, 32, 123, 124, 370, 385, 464, 974, 1066.
 Lugard, Mrs. E. J., Preface, 123, 124, 125, 463, Plate X.
 Lugard, Lord, 123, 124.
 Lunt, W., 18, 123, 176, 257.
 Lycett, 109, 1086.
 Maass, C. A., 934.
 MacOwan, P., 84, 105, 106, 110, 112, 479, 560, 618, 619, 779, 971, 1117, 1119.
 Maire, R., Preface, 21, 139, 221, 228, 266, 271, etc.
 Marloth, R., 11, 34, 70, 78, 96, 100, 105, 106, 112, 117, 118, 142, 282, 329, 330, 345, 453, 465, 467, 493, 499, 510, 524, 587, 725, 736, 805, 940, 958, 991, 1002, 1005, 1016, 1035, 1037, 1038, 1043, 1044, 1045, et passim.
 Marloth, Mrs. R., Preface, 329.
 Massey, R. E., Preface, 20.
 Masson, F., 12, 82, 83, 84, 85, 86, 105, 298, 299, 303, 304, 321, 323, 324, 342, 410, 440, 445, 478, 483, 490, 497, 507, 516, 546, 550, 580, 588, 606, 607, 623, 651, 652, 654, 688, 706, 724, 735, 769, 773, 782, 787, 809, 810, 811, 912, 916, 919, 924, 952, 1001, 1051, 1077, et passim.
 Maughan-Brown, R., 143, 283.
 Mayuranathan, P. V., Preface, 15, 137, 138, 151, 152, 166, 171, 195, 197, 199, 200, 201, 202, 246, 247, 1122, etc.
 McCabe, Mrs. H., 153, 544, 547, 584.
 McClean, A. P. D., Preface.
 McGubbin, W. A., Preface.
 McKen, M. J., 102, 103, 897.
 Mennell, B. T., 143, 795, 799.
 Meyer, G., 1128, 1129, 1132.
 Meyer, H., 1128.
 Mikan, 229.
 Miller, A. H., Addenda C.
 Miller, P., 79.
 Minney, R. J., Preface, 88.
 Mitford-Barberton, I., 100.
 Molony, Mrs. E. R., Preface, 25, 152, 238, 406, 411, 430, 435, 436, 833, 837.
 Monteiro, J. J., 118.
 Monteiro, Mrs. J. J., 35, 118, 433.
 Moore, S., 346.
 Morison, R., 77.
 Morris, Rev., 109.
 Mouret, Col., 182.
 Muir, J., Preface, 68.
 Munby, G., 99, 231.
 Munuera, J., 230.
 Museums and Libraries:
 Albany Museum, Grahamstown, Preface, 64, 100, 105, 112.
 American Museum of Natural History, New York, 141.
 Berlin Zoological Museum, 91.
 Coryndon Memorial Museum, Nairobi, Preface, 833.
 Field Museum, Chicago, 10.
 Madras Government Museum, Preface, 137.
 McGregor Museum, Kimberley, Preface.
 Municipal Demaeght Museum, Oran, Preface.
 Museum of Natural History, Paris, Preface, 95, 127, 141, 264.
 Museum of Natural Sciences, Barcelona, Preface.
 Rhodesian Museum, Bulawayo, Preface.
 South African Library, Capetown, 1118.
 South African Museum, Capetown, Preface, 105, 1118.
 Transvaal Museum, Pretoria, Preface, 131, 140, 295, 1068.
 York Museum, 99.
 Nägelsbach, E., Addenda E.
 Nel, G. C., Preface, 29, 31, 32, 33, 35, 36, 85, 139, 140, 317, 326, 373, 380, 450, 470, 472, 576, 637, 639, 740, 755, 813, 912, 969, 972, 987, 1003, 1023, 1025, 1058, 1061, 1062, 1063, 1069, 1102, Addenda A, C, F, G, I, K, L, et passim.
 Nero, 130, 721.
 Niebuhr, K., 78.
 Niehaus, P., 329.
 Niemeijer, M., Preface.
 Nodder, F. P., and Co., 1120.

- Obermeijer, Miss A. A., Preface, 13, 43, 131, 135, 136, 285, 294, 295, 338, 364, 474, 899, 921, 928, 931, 933, 936, 1067, 1071, 1083, Addenda B, D, E, H, J, N, O, et passim.
- Ogilby, J., 76.
- Ogilvie-Grant, 17, 407.
- Oldenburg, D., 84.
- Oldenland, H. B., 1119, 1120.
- Orpen, R., Preface, 1135.
- Otzen, M., 81, 1052.
- Pappi, A., 122, 188.
- Paterson, W., 1, 86, 96, 1032, 1033.
- Paulay, S., 17, 127, 251.
- Pearson, H. H. W., 106, 132, 461, 520.
- Pegler, Miss A., 63, 128, 631.
- Penzig, O. A. J., 121, 133, 857, 981.
- Periodicals:
- Acta Horti Bergiani, 831.
- Annales des Sciences Naturelles, 177, 237, 249.
- Annales du Mus. Colon. de Marseille, 960, 961, 962, 963, 964, 1006, 1007.
- Annals of the Transvaal Museum, 131.
- Blühende Kakteen, 359.
- Botanische Jahrbücher, 120.
- Bulletin de la Soc. Bot. de France, 982.
- Bulletin of the Government Museum of Madras, 137, 166, 168, 171, 174, 247, 1122.
- Cactus Journal, London, 116.
- Cactus and Succulent Journal, Los Angeles, 116, 1124.
- Cape Times, Preface, 530, 636, 1066, 1123.
- Comptes Rendus de l'Acad. des Sciences Colon., 108.
- Curtis's Botanical Magazine, Preface, 86, 87, 92, 95, 97, 98, 101, 105, 107, 109, 111, 113, 114, 117, 120, 132, 133, 203, 226, 281, 442, 508, 509, 522, 526, 536, 538, 541, 580, 581, 614, 615, 624, 652, 656, 706, 712, 778, 822, 829, 847, 861, 895, 909, 912, 947, 948, 949, 980, 983, 1033, 1045, 1077, 1101, 1103, etc.
- Desert, Preface, 1087.
- Flowering Plants of South Africa, Preface, 134, 155, 287, 289, 290, 291, 295, 328, 329, 335, 337, 339, 343, 363, 366, 368, 387, 391, 393, 397, 414, 415, 441, 489, 491, 503, 518, 540, 546, 561, 576, 608, 617, 632, 634, 640, 642, 705, 731, 759, 761, 768, 776, 777, 785, 792, 802, 804, 806, 886, 889, 900, 902, 922, 937, 941, 942, 946, 951, 966, 969, 974, 1002, 1035, 1104, 1108, Plates III, IV, V, VII, IX, XI, XII, XIII, XVI, XVIII, XX, XXI, XXIII, XXIV, XXV, XXVI, XXVII, XXXI, XXXIII, XXXIV, XXXV, XXXVIII, XXXIX, etc.
- Gardeners' Chronicle, Preface, 28, 116, 310, 433, 597, 601, 604, 658, 660, 684, 864.
- Gartenflora, 263, 860, 977.
- Hooker's Icones Plantarum, Preface, 109, 111, 116, 308, 332, 333, 469, 482, 513, 585, 586, 594, 599, 609, 619, 628, 634, 667, 669, 708, 793, 794, 802, 918, 1058, 1083, 1124, etc.
- Kew Bulletin, 116, 123, 167, etc.
- Lindley's Botanical Register, 222.
- Journal of the Linnean Society, Preface, 83, 103, 113, 116, 150, 165, 244, 281, 297, 722, 1086, 1119.
- Malpighia, 104.
- Memories del Museu de Barcelona, 229.
- Monatsschritte für Kakteenkunde, 374, 695, 853.
- Records of the Albany Museum, 284, 296.
- Revue de Botanique Appliquée, 127, 181, 241.
- Revue Horticole, 270.
- South African Gardening and Country Life, Preface, 276, 301, 418, 452, 454, 517, 529, 613, 621, 721, 795, 799, 1028, 1089, etc.
- Transactions of the Royal Irish Academy, 217.
- Transactions of the Royal Society of S. A., 61.
- Perrottet, 95, 96, 242, 264.
- Pesch, C., 145, 327.
- Petit, A., 99, 263.
- Petiver, J., 72.
- Phillips, E. P., Preface, 105, 106, 135, 366, 368, 392, 393, 394, 397, 410, 483, 517, 541, 577, 632, 641, 762, 777, 778, 785, 802, 817, 885, 901, 920, 922, 930, 931, 933, 966, 1100, 1106, Plate IV, et passim.
- Phillips, Sir Lionel and Lady, 118.
- Piers, C., 143, 595, 883.
- Pillans, C. E., 128, 502, 560, 950.
- Pillans, N. S., 12, 13, 85, 117, 129, 130, 133, 292, 296, 313, 345, 437, 442, 455, 476, 479, 503, 565, 569, 573, 612, 613, 626, 652, 674, 693, 720, 721, 729, 730, 732, 745, 759, 760, 762, 768, 775, 778, 791, 798, 804, 805, 843, 869, 887, 910, 939, 956, 958, 985, 986, 1011, 1013, 1028, 1029, 1030, 1031, 1081, 1121, et passim.
- Plant, R. W., 102, 537, 614.
- Platt, Miss E. T., Preface.
- Plukenet, L., 77.
- Poindexter, R. W., 817.
- Pole Evans, I. B., Preface, 13, 14, 38, 134, 136, 289, 335, 926, 1043, Map Vol. II.
- Porter, F. W., Preface, 33, 143, 144.
- Porter, Mrs. F. W., 143.
- Pott, Mrs. R. L., 131, 528, 530, 553.
- Powis, Countess of, 88, 89, 202.
- Powis, Earl of, Preface, 89.
- Primos, R., Preface, 143, 307, 331, 499.

- Pringle, D., Preface, 66, 392, 399, 467, 480, 492, 495, 518, 633, 645, 686, 688, 752, 904, 910, 915, 1021, 1043, 1107, 1133, etc.
- Probst, A., Preface, 383, 440, 522, 578, 677, 830, 858, 868, 929, 1034.
- Puccioni, 260, 261.
- Pulleine, R. H., Preface, 236, 239, 724, 1059, 1065.
- Quartin Dillon, R., 99, 262, 852.
- Rabjohn, 143, 935.
- Raffill, C. P., 519.
- Ranade, 149.
- Range, P., 28, 340, 1001.
- Ray, J., 77.
- Reeve and Co., Ltd., L., Preface, 116, 134.
- Reynolds, 109, 333.
- Reynolds, G. W., Preface, 46, 47, 52, 64, 345, 354, 361, 362, 363, 399, 400, 444, 481, 502, 527, 532, 554, 557, 558, 559, 568, 569, 570, 616, 643, 693, 745, 750, 751, 752, 756, 758, 759, 773, 774, 779, 822, 839, 841, 842, 843, 872, 873, 880, 882, 884, 889, 894, 895, 897, 904, 929, 938, 940, 953, 965, 967, 968, 1046, et passim.
- Reynolds, Sir Joshua, 89.
- Richard, A., 96, 268, 851, 852.
- Riva, D., 122, 211, 261.
- Rivinus, see A. Q. Bachmann.
- Rocha da Torre, A., 35.
- Rogers, F. A., 134, 391.
- Rogers, W. M., 134.
- Rondet-Saint, M., Preface.
- Rooksby, Mrs. E. K., Preface.
- Rosengren, H., 251.
- Ross-Craig, Miss S., Preface, 3, 179, 192, 207, 234, 235, 256, 305, 316, 372, 381.
- Ross-Frames, P., 85, 138, 276, 792, 811, 976, 986.
- Roxburgh, W., 88, 89, 151, 172, 202, 203, 204, etc.
- Rudolph, W. E., Preface, Map Vol. I.
- Rungiah, 98, 197, 246.
- Ruppius, H. B., 78.
- Rusch, E., Preface, 30, 144, 145, 380, 648, 649, 813, 1136, Addenda I.
- Rusch, Mrs. E., 30.
- Rusch, E., Jr., Preface, 144, 145, 277, 647, 746, 766, 812, 913, 1044, 1048, 1049, 1071, 1074.
- Ruspoli, Prince, 122, 261.
- Rüst, 98, 668, 695, etc.
- Sackville Bale, Rev., 95.
- Salm-Dyck, Prince, 98, 695, 775, etc.
- Sanderson, J., 102, 360.
- Saunders, Mrs. K., 928.
- Saunders, W. W., 103, 116.
- Schaffter, C. M., Preface.
- Schimper, 262, 852.
- Schinz, H., 31, 118, 122, 375, 381, 458, 465, 493, 578, 1107, etc.
- Schlechter, R., 118, 120, 275, 355, 359, 487, 488, 628, 640, 641, 754, 785, 793, 899, 905, 921, 939, 1085, etc.
- Schneider, C., 844.
- Schoenfelder, E. B. W., Preface, 80, 125, 348, 349, 384, 387.
- Scholl, G., 86, 92, 483, 487, 689, 955.
- Schönland, S., 32, 66, 105, 106, 119, 120, 296.
- Schreiner, Olive, 523.
- Schuldt, H., 1087.
- Schultes, J. A., 82.
- Schumann, K., 120, 189, 722, 821, 984, 986, 990, etc.
- Schweickerdt, E., 141, 1068, 1071.
- Schweickerdt, H. G., Preface, 42, 43, 135, 136, 295, 338, 361, 558, 922, 928, 1068, etc.
- Schweinfurth, G. A., 17, 18, 107, 108, 121, 127, 180, 210, 211, 214, 216, 224, 249, 273, 274, 407, 852, 859, 861, 898, 977, et passim.
- Searle, Mrs. A., Preface.
- Sedgwick, L. J., 196.
- Senni, L., 139, 183.
- Sessé and Mocino, 10.
- Shaw, J., 142, 796.
- Sickenberger, E., 179.
- Sims, J., 86, 87, 92, 508, 509, 580, 624, 949, etc.
- Slade, 240.
- Sladen, W. P., 132.
- Sloane, Mrs. B. L., 763, Addenda M.
- Smith, C. A., Preface, 85, 535, 809.
- Smith, E., 282, 345.
- Smith, G. G., Preface, 1081.
- Smith, Miss M., 87, 184, 213, 256, 402, 434, 462, 526, 541, 861, 909, 980, 983.
- Smithers, R. H. N., Preface, 386, 610, 728, 924, 1030, 1049, 1110.
- Societies:
- American Geographical Society, Preface.
- Arundel Society, London, Preface, 89.
- Botanical Society of South Africa, 138.
- East Africa and Uganda Natural History Society, Nairobi, Preface, 435.
- Geographical Society of France, 141.
- Linnean Society, London, Preface.
- Prieska Plant Protective Society, Preface, 55.
- Royal Horticultural Society, London, Preface.
- Société Botanique de France, Paris, Preface.
- South African Association for the Advancement of Science, 105, 119.
- South African Philosophical Society, 112, 1117.
- South African Succulents Society, Great Brak River, Preface, 143, 674.
- Succulent Society of Salisbury, 143.
- Wernerian Society, 94, 151, 819.

Societies — *Continued*

- Wild Plant Society of Matabeleland, Bulawayo, Preface, 143.
 Soldana Gardens, 576, 695, 1036, 1084.
 Sondern, O. W., 105.
 Sowerby, J., 87, 706.
 Sprenger, C., 263, 851, 981.
 Standley, P., 10.
 Stanford, Miss K. C., 85, 508.
 Stapff, F. M., 118, 1014.
 Stefanini, 260, 261.
 Stent, Miss S. M., 848, 925.
 Stephens, Miss E. L., Preface.
 Stevenson, R. H. R., Preface, 34, 143, 285, 286, 371, 537, 849, Addenda B, D, H.
 Stisser, I. A., 78.
 Stolz, A., 844.
 Stuhlmann, F., 108, 120, 121, 274.
 Svenson, H. K., Preface.
 Svensson, E. R., 383, 440, 522, 578, 677, 830, 858, 868, 929, 1034.
 Sweet, R., 96, 410, 508, 1050, 1051, 1078, etc.
 Swierstra, C. J., 131.
 Symons, R. E., 930.
 Tapscott, S., Preface, 32, 52, 144, 279, 304, 320, 370, 371, 388, 394, 396, 398, 399, 413, 466, 467, 493, 498, 501, 502, 515, 521, 523, 538, 545, 560, 561, 566, 572, 578, 590, 608, 620, 630, 643, 654, 655, 736, 737, 742, 749, 751, 752, 767, 801, 805, 874, 879, 880, 881, 906, 938, 939, 943, 947, 953, 970, 1076, etc.
 Taubert, P., 861.
 Tavares de Macedo, J., 1100.
 Templeman, R., 143, 316, 497, 736.
 Terracciano, A., 122, 188.
 Thiselton-Dyer, Lady Harriet, 87, 113, 114, 116.
 Thiselton-Dyer, Sir W. T., 12, 113, 847, 1086.
 Thomas, 239.
 Thomson, Miss H., 143, 959.
 Thorncroft, J., 895.
 Thornton, R., 76, 90, 91, Plate I.
 Thunberg, K. P., 82, 83, 84, 85, 105, 591, 594, 724, 735, 782, 1001, 1114, 1120, etc.
 Thuret, G. A., 879, 881.
 Tischer, A., 116.
 Tissot, A. F., Preface, 875, 876, 877, 878, Addenda D.
 Todaro, A., 104, 668, 682, 684, 695.
 Todd, 474.
 Tournefort, J. B. de, 77.
 Townley, D. H., 849.
 Trevithick, W. E., 185.
 Triebner, W., Preface, 144, 145, 320, 472, 493, 495, 506, 528, 846, 913, 926, 988, 1004, 1014, 1066, 1087, 1088, 1089, 1090, 1094, 1110, 1126, 1135, Addenda E, F, G, J, M, N, etc.
 Trochain, J., Preface, 265.
 Tuck, 102, 614, 954.
 Turrill, W. B., 944.
 Tweedie, Mrs. E. R., Preface, 832.
 van Balen, J. C., 886.
 van den Houten, J. M., Preface.
 van den Thoon, Miss J. J. B., 690.
 van der Bijl, Mrs. D., Preface, 143, 541, 674, 675, 724, 1022.
 van Heerden, P., 314, 325, 648.
 van Nouhuys, J. J., 43, 135, 490, 517, 642, 889.
 van Ryneveld, W. A., Preface, 65.
 van Ryneveld, Mrs. W. A., 396.
 van Sommeren, V. G. L., Preface.
 van Son, G., 140, 141, 365, 368, 934, 941, 1108, Plate IV.
 van Stapel, E. B., 74, 1113.
 van Stapel, J. B., 74, 409, 410, 1113.
 Verdoorn, Miss I. C., Preface, 38, 43, 135, 136, 295, 335, 336, 338, 340, 355, 357, 387, 479, 537, 538, 570, 642, 778, 888, 928, 934, 941, et passim.
 Vereker, L. S. A., Preface, 34, 143, 144, 349, 350, 849.
 Vernay, A. S., 32, 141, 365, 944.
 Vieira, C. de Melo, Preface.
 Villet, C. T., 143, 301.
 Virchow, R., 984.
 Vogts, L. R., 135, 902, 934.
 Volckamer, J. G., 79.
 Volkart, G., 908.
 Volkens, 244.
 von Wolff, N. P., Addenda O.
 Walker, J., 87, 947.
 Walker, Miss M., Preface, 1071, 1073.
 Walker-Arnott, G. A., 97.
 Wallich, N., 95, 169, 195.
 Walter, H., Preface, 245.
 Warburg, O., 1075.
 Warner, Mrs. J. M., 494.
 Warren, Miss A. B., 357.
 Waterboer, N., 110.
 Waterhouse, G., 1118.
 Webb, P. B., 229, 230.
 Weimann, J. W., 79, 80.
 Welwitsch, F., 27, 101, 102, 347, 838, 1075, 1099, 1100.
 Werdermann, E., Preface, 359, 899.
 West, J., 225, 569, 695, 725, 841, 856, 971, 1040, 1053, 1064, 1065, 1085.
 Westcombe, J., 662.
 Westcombe, Miss, 661.
 Wheeldon, Miss K., 345.
 White, Miss M., 584, Addenda M.
 Whitley, Brame and Milne, 87.
 Wiedemann, F., Preface, 298, 627, 673, 678, 685, 739, 753, 760, 828, 832, 856, 857, 908, etc.

- Wight, R., 97, 98, 173, 197, 199, 204, 205,
247, etc.
Willdenow, 93, 589, 1032, 1033, etc.
Wilman, Miss M., Preface, 51, 53, 73, 74, 530,
569, 881.
Winkler, H., 278.
Witsen, N. C., 69, 891, 1114, 1115, 1116, 1117,
1118, 1119, 1120.
Wood, A., Addenda N.
Wood, J. Medley, 105, 106, 120, 434.
Woodford, 87.
Yacouba-Dupuis, 127.
Young, R. G. N., 144, 542.
Younger, W. M., 144.
Zambony, 853.
Zeyher, C. L. P., 99, 105, 751, 801, 1032, 1083.

